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THE
FLORICULTURAL CABINET,

AND

Florists' Magazine.

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P R E F A C E.

WE prefer, in general, that each number of our Magazine shall not only furnish our readers with the means of estimating its merits, but at the same time obtain their entire approval, to realize which our uniform efforts have been directed.

We do not wish, however, to neglect the opportunity, which custom yearly supplies, of reverting to its progress (and this in several respects is a very pleasing task), and to renew our assurances that its future improvement will always be determined by our own or our readers' discovery of its necessity and means of accomplishment.

By glancing over the pages of the present volume an opinion of its merit will be obtained, that we cannot allow ourselves here to express.

Twenty-three years have now passed since the FLORICULTURAL CABINET first appeared, and the completion of so many volumes furnishes us an appropriate occasion for surveying the path we have pursued as Editor thereof. In doing so, it is peculiarly encouraging, and affords us considerable satisfaction to have had *practical results*, as an evidence that our efforts have constantly met with steadfast and munificent support. To these unequivocal testimonials in favour thereof we refer with grateful pride, conscious that for such success we have been much indebted to the number, variety, and practical value of those communications with which we have been enabled to enrich its pages.

These united advantages have rendered the FLORICULTURAL CABINET unequalled in value as a floral publication. To have been raised to so elevated a position, we are free to acknowledge has, during each successive year, increased the debt of gratitude due from us to our supporters; we beg, however, again to record our grateful sense of obligation, and we very respectfully and

sincerely tender our thanks to Subscribers and Correspondents. But while we thank our friends for their assistance, we beg for its continuance, and with it we will adopt all available means for maintaining the interest and usefulness of the publication, so that the utmost equivalent shall be given to our Subscribers in *floral* information.

During the present year we have been highly gratified with receiving numerous testimonies of approval and admiration of the excellent designs of grounds and gardens which have been so liberally and cheerfully supplied by Thomas Rutger, Esq., and appeared in the successive numbers of our Magazine. At the particular request of several correspondents, we are asked thus to record their respectful thanks (in which we most sincerely unite) to that gentleman for his favours, and they hope for a continuance of his valuable contributions.

As by the common course of nature some of our friends pass away, we solicit those remaining to favour us by a recommendation of our Magazine to others, and we will use every endeavour to give proof of our gratitude for such kindness.

With such encouragements we reiterate the assurance to our Subscribers, that no practicable means of rendering this publication *additionally and enduringly attractive*, and worthy their support and recommendation, shall remain untried.



The Floricultural Cabinet.

JANUARY, 1855.

ILLUSTRATIONS.

PASSIFLORA DECAISNEANA.

THIS superb genus of climbing plants, of which we now have so splendid a collection in our own country, was unknown before the treasures of the western world were discovered by Columbus.

Its ancient American name is *Murucua*, or *Maracoe*, but when first found by the Spaniards in South America, they called it *Granadilla*, from a resemblance they conceived its fruit to bear to that of the pomegranate, which is *Granadilla* in Spanish. It appears to have been cultivated in Europe about 250 years. A plant of *Passiflora incarnata* was figured in a work published at Paris, in 1612. We find it pictured too by Dr. Aldine, in 1620, from a plant that had flowered in the garden of Cardinal Farnesius, in Rome. In 1629, Parkinson tells us that it had not, up to that time, fruited in England.

When it was first introduced into Italy, superstition found a mysterious representation of the passion of Christ in the flower; and the crafty, who are always ready to impose on the credulous, soon turned this vegetable prodigy to account. To such a height was this ridiculous fantasy carried, that figures of the flower were manufactured for devotional purposes, instead of the presumptive symbol.

We have already observed that the original name was *Murucua*, and one of the poets, musing upon it, wrote as follows:—

“Beneath the covert of o’er-arching trees,
Bright *Murucua* woos the cooling breeze.
The passing Indian turns the admiring eye,
Smit by the glories of her crimson dye,
And stops in pleased attention to survey
Her vivid leaves and variegated ray.
But loftier thoughts the rising mind inspire.
When warm devotion lends her holy fire.
Haply amid the convent’s virgin train,
Bosom’d in shades beyond the western main,

At rosy morn, or evening's silent hour,
 Some fair *Enthusiast* views the sainted flower,
 When lo! to rapt imagination's eye,
 Springs the sad scene of darkened Calvary!
 The thorny crown the heavenly brows around,
 The scourging thorns, the galling cords that bound,
 And nails that pierced with agonizing wound;
 Sudden she lifts to heaven her ardent eye,
 In silent gaze, and solemn ecstasy;
 Then, fill'd with timid hope and holy fear,
 Drops on the flower a consecrated tear."—SHAW.

Linnaeus changed the name from *Flos-passionis* (Passion-flower) by combining the words into the technical name of *Passiflora*.

The pinky flesh-coloured (*P. incarnata*) was the first species known in Europe, and introduced into England in 1629. A period of sixty years elapsed before another species was obtained, when, in 1690, the following three were received—*P. laurifolia*, *P. miniata*, and *P. cærulea*. The latter is the common blue flowered, which thrives in the open air in England, and trained against a south aspected wall, or trellis, is one of the loveliest of floral objects. In a warm and sheltered situation it flourishes and blooms in profusion, trained up a pillar in the open bed or border; also trained to a low wire-work frame, of six inches to a foot high, it forms a charming edging to a bed of flowers. In either case the plants are readily protected in winter, where they are planted, or can be taken up, repotted, and wintered where they are just saved from frosts, in a greenhouse or frame. The following spring (early in May) they are turned out again into the open ground. This handsome species, in the Brazilian forests, climbs to the height of sixty feet, forming festoons from tree to tree, which are profusely spangled with these brilliant stars in the most superb manner. There are several other species that thus flourish in these forests, and have flowers that are crimson, red, and scarlet, and we are informed that *P. racemosa*, crimson bunch-flowered, is one of the most conspicuous.

The one we now figure, *P. Decaisneana*, far eclipses all others in splendour, and is as much superior to them as our present first-rate Dahlias are to the original single-flowered one introduced from Mexico.

Its origin is somewhat uncertain; by some it is considered to be an hybrid, raised between *P. alata* or *P. quadrangularis*, impregnated by one of the brilliant scarlet or crimson kinds. Its flowers are much like those of *P. alata* in form, and are very sweet scented. The plant grows and blooms very freely, the large elegant flowers being highly ornamental. It succeeds well in a stove, conservatory, or good greenhouse; and either trained to a pillar, under a rafter, against a wall or trellis, as also grown in a pot, and coiled round a wire framework. It is readily increased by being grafted on the stock of *P. edulis*.

TREATMENT OF CAMPANULA PYRAMIDALIS.

BY MR. WILLIAM TAYLOR, GARDENER, ELLINGTON HOUSE, MONKSWELL,
YORKSHIRE.

By the following method of cultivation I have produced, for several successive years, the most magnificent blooming specimens of this highly ornamental plant that have hitherto been produced in this country, at all events, as far as the testimony of many gardeners and others bear me out, or any record in publications that I have seen. I forward the particulars of treatment, hoping it will be useful to others.*

About the beginning of May sow the seeds on light soil, in a warm situation below a hand-glass, and cover them about one quarter of an inch deep. After the plants appear above the soil, they should have air, increasing it as the plants get strength—never allowing the soil to become dry, which, if it does, the plants will make little progress. When they get about one inch high, they should be planted into a bed prepared beforehand; the soil of this bed should be thrown out to the depth of one foot, and on the bottom lay a few inches thick of good rotten dung, filling up with good, light, rich soil. In pricking out the plants, care must be taken not to break or damage the roots, if possible. When they are planted, about an inch of dung should be spread over the surface amongst the plants, to retain moisture. An east or west aspect is better than the south or north. If the weather prove dry, the plants should be regularly supplied with dung-water. By autumn they will have made great progress, and be strong plants. Through winter they should be protected from severe frosts, by having a little loose hay or straw laid over them, but not so heavy as to break the leaves of the plants.

In March following the plants should be examined, and if any have the appearance of throwing up a flowering stem, the plant should be carefully lifted, and the flower-stem cut off, in the same manner as in cutting sea-kale, leaving a few buds to each crown. The lifting of the plant is to retard its growth; for, if cut over, and not removed, it would quickly shoot forth more flowering stems, to the great hurt of the plant. When planted again, they should be placed a little more distant from one another, and shaded from the sun (if powerful) for a few days. If the weather be dry, the plant should get a regular supply of dung-water at least three times a week; for it is only by supplying them liberally with manure in a liquid state that we can expect much success. The plants by autumn will be very strong, and will require a little more care in protecting through winter. After the plants have done growing in October, the ground should be covered to the depth of three or four inches with old tan, sawdust, or coal ashes, but not so deep as to cover the point of the shoots; and if frost be severe, cover as before with hay or straw.

In the third year, before they begin to grow, they ought to be taken to the flower-garden, with their balls and roots as entire as possible, and either planted in beds by themselves, prepared for their reception, or singly; when the latter is the case, the soil ought to be taken out to the depth required, and its place supplied with good rich soil. They should be planted in a warm situation, and where they will have the benefit of pure air; a few may likewise be put in pots for ornamenting the greenhouse, dwelling-room, or entrance hall, and if one be placed in a shady part thereof, the flowers become of a beautiful cream colour, and are very handsome. As the plants advance in growth, they must be supported accordingly. It may perhaps seem incredible to some of your readers to be informed, that the plants treated in the manner above described will grow to the height of between eight and nine feet, covered with a profusion of bloom to within a foot of the ground. The plants being supplied with the dung-water, causes them to grow so luxuriant as to throw out a great quantity of side shoots, and these also throw out others, which in their turn flower, causing the plants to have a splendid appearance at that season of the year when most of the flowers that bloom late in autumn are of a yellow colour.

I have grown plants, with the above treatment, producing upwards of forty shoots, all in flower at one time, with a centre shoot eight and a half feet high. After the plants have flowered, they may be destroyed, for they will be found not to be worth bestowing any trouble upon; indeed, most of the plants will die.

Gardeners in general cultivate this plant under a wrong idea; that is, if any dung be added to the soil, "it is certain death to the plant." Now this is the result of giving ear to persons who have never put this plan in practice.

GRAFTING AND BUDDING THE RHODODENDRON.

BY MR. WATERER, BAGSHOT, SURREY.

OBSERVING in a late number of the CABINET some remarks on propagating the Rhododendron and similar shrubs, has led me to forward the following observations on the process of budding and grafting.

The success of budding depends greatly on the state of the stock; if this is growing vigorously, and the bark flies up quite freely on the introduction of the budding knife, the budding will hardly fail of success; if the young shoots of the stock are nearly ripened to the top, the bark is in the way of beginning to fasten to the wood; or if the shoots are small and weak, and the plant unhealthy, the bark, most likely, has not risen at all; in either case, the bark will not rise freely from the incision with the handle of the knife, the sap is not circulating freely, and it is in vain to attempt introducing a bud by forcing

up the bark. The bud should be chosen from a vigorous young plant, the shoots from old trees not having so much sap or vitality ; and the bud should be chosen when the bark is beginning to assume a ripe colour ; if too ripe, it does not rise so freely from the bark, and vitality is beginning to get dormant ; if too green, it is apt to perish before uniting to the stock. The buds should be tied as soon as possible after the operation, to exclude air from the wounds ; but if the stocks are vigorous, drawing very tight is not of so much consequence here as in grafting. When buds are nearly ripe, in which state they succeed best, the piece of wood which unites the bud to the branch is apt to break off far in, and leave the appearance of a hollow eye. Some operators attach great importance to this, and say that, though the bark live and unite, the bud will not push in the spring ; but I have frequently inserted buds with very hollow eyes, and marked them for the purpose of experiment, and they always pushed as well as the others : the sap of the tree should soon fill this hollow. Much of the success also depends on having the edges of all the cuts smooth, and the operation done as speedily as possible. If the edges of the wound are rough, the vessels of the liber, where the living principle is most active, are bruised and lacerated ; and if long exposed to the air, they begin to spoil. The common method of extracting buds is to cut away a piece of the shoot, and afterwards extract the wood ; but this destroys the very sharp edge of the knife, and the cut will invariably be found more or less rough. The bark should be cut all round the bud to the shape and size wanted, and the thumb pressed against the cut portion, at the side of the bud ; if the shoot is growing and healthy, the bud will separate freely, and there will be no laceration of the edge ; the bark will be cut as smooth as a piece of cheese, and the edge of the knife will be kept sharp, as no wood needs to be cut through. As far as mechanical operation is concerned, this cutting smooth is of far more importance than any method of inserting the bud ; if the bud does not squeeze freely off the branch with the side of the thumb, it is very doubtful of succeeding.

Much of the success of grafting depends on keeping the alburnum, or newest layers of wood and liber, or inner bark of the stock and graft, closely united and pressed together, till a complete union takes place ; it is in the bark and soft wood that the development is most rapid, though all the cellular tissue is capable of uniting. For this purpose they should be as near of a size as possible, and the slice from each should be very small, allowing as much of the alburnum as possible to remain on both—it is there where the sap rises ; and if the slice is made, either in graft or stock, through to the heart-wood, the ascent of the sap is stopped, except by the edges. The graft should not be put on till the stock has commenced to grow, when the new layer of inner bark is about to be formed, and the efforts to unite commence ; both stock and graft are apt to dry and shrink, or cling, and thus part from one another, if done long before the commencement of growth. The grafts should be taken off before they begin to

spring, and their ends inserted in damp earth; as they will cling more if taken off after they have begun to swell by growth, and thus part more from the stock. Also, if the living principle is set in motion by the commencement of growth before taking off, and then checked by taking off, or by cold weather succeeding warm, the graft will perish more readily than if the growth of the stock had commenced first, and the graft been fed from the union of the tree; for this purpose, the grafts of deciduous plants should be taken off before they begin to swell in the bud; as, if growth has commenced, it will proceed further in the graft, though off the plant, and be hurtful. Neither seeds nor cuttings will perish near so readily when in a dormant state, as when life is set in motion, and then checked. To prevent clinging or shrinking, choose well-ripened wood. The young shoots of young trees, or the bottom growths of old trees, are generally more vigorous than the extremities of old trees, vitality is more active in these young shoots; but in grafts that have the young wood soft and apt to cling, choose strong, vigorous, two or three years old wood. Many grafts that succeed with difficulty, if the grafts are retarded, the old wood chosen, and the stock allowed to spring before grafting, will succeed in this way, when they will do so in no other. Much of the success, however, depends on the warmth of the weather keeping the sap flowing. Moist, warm weather is good, but heat is the principal requisite, the stocks being already established; and wet weather is very often cold in spring. The mechanical part of the operation depends on the slopes of the cuts being made to fit one another exactly, which is easiest done by choosing the slopes of the graft to fit those of the stock as nearly as possible, by thin slices being taken off each; by using a thin-backed, broad-bladed, sharp knife; and by drawing the hand straight, without twisting, when making the cut. The graft and stock must be hard pressed together, without shifting, in the tying; which is best done by a smart hitch or pull, every time the wet bast ligature passes the graft in the act of tying, and not by continued pulling. The above remarks apply chiefly to whip-grafting, which is the most common. Crown-grafting is that most practised for old trees; and the necessity to take off the grafts, and allow the stock to push, is here absolute, as the operation cannot be performed properly till the bark rises freely from the stock. When the bark rises freely, success is very certain in this way, if the grafts are strong and not sprung; as the flow of sap causes union to take place speedily, and the strong bark keeps the graft in its place. If the bark and wood of the stock do not separate freely, it is in vain to attempt grafting in this way. Grafting soft evergreens, as Rhododendrons, Daphnes, etc., is best done by waiting till growth has fairly commenced, either the first, pushing in spring, or the second, in summer, and inserting the graft in the manner of a bud, by opening the bark of the stock. The grafts of these must not be taken off till needed, as they are not dormant like deciduous grafts, and more apt to perish. The bark will not rise till growth has fairly commenced,

and dull, cloudy, moist, warm weather suits best ; if dry and sunny, they should be shaded. With evergreens a few leaves are left on the top of the stock to draw up the sap, and to carry on the growth ; it is useful in the grafting of all soft evergreens.

Increase by layers is often adopted with evergreens, and is generally successful where circumstances admit of it. Take care to tongue the layer close under a side bud, and keep the tongue quite open, and the part above the tongue to be made as perpendicular as possible, the two being at right angles, which causes the sap to accumulate, and so form a swelling of cellular matter at the bottom of the tongue, from which the roots proceed. A little fine sand put round the cut prevents the wound corroding in heavy soils, and by pressing on the bark, as in cuttings, promotes the rooting. The layer must be kept steady by a peg, but where the shoot is long and likely to be shaken by wind, that must have a support to be tied to.

SUITABILITY AND BEAUTY OF MESEMBRYANTHEMUMS FOR ORNAMENTING ROCKWORK.

BY A NOBLEMAN'S FLOWER GARDENER IN BEDFORDSHIRE.

I HAVE sent the following particulars of this charming family of plants, for insertion in the January Magazine. It is to encourage their more general cultivation out-doors, on rockwork, during the summer season. For several years I have grown this showy tribe of plants on pieces of rockwork on the side of a steep bank, facing the south, and on the north side of my flower-garden. The plan which I have practised with these plants is as follows:—About the month of May I select a quantity of cuttings, taking large pieces several inches in length from those kinds which run to stems. Having taken one or more cuttings from each kind, and allowed them to lay on a dry shelf for a day or two, they are inserted into pots about three inches in diameter ; the soil is laid with a little peat and sand. They are then placed in a close frame, or a shady part of the greenhouse ; the soil in the pots is just kept between wet and dry, and in this way they remain for a month or six weeks, when they may be removed into a more airy part of the greenhouse. These are now cultivated on the shelves of the greenhouse till the following May, when the same process is again adopted. Towards the middle of May I examine my plants, and select all the oldest duplicates ; these are removed to the rockwork already mentioned, and carefully planted, with the stems laid round the roots, and the branches are then divided equally round the plant, placing a few small stones over them ; here they will throw out roots, which adds strength and vigour to the plants. When all are planted in this way, they are then well watered ; and this, with the exception of keeping down weeds, is all the care they require throughout the summer. To prevent heavy showers from dashing up the earth on the leaves and stems, I cover the whole of the beds or

8 TREATMENT OF MANETTIA CORDATA, AS A STOVE PLANT.

patches either with moss or small stones. In this way the *Mesembryanthemum* delights to ramble and grow; and during sunny, dry weather, nothing can be more gay and brilliant than the flowers of this sun-loving genus.

ON THE TREATMENT OF MANETTIA CORDATA AS A STOVE PLANT.

BY A FOREMAN AT KEW.

ONE of the most beautiful plants that I know is *Manettia cordata*, when treated in the following manner. Suppose the plant small, young, and healthy, and in a pot of four or five inches in diameter, and pretty well rooted, shift it into a pot a size larger; but the pot ought by no means to be more than one size larger. Put a stake or support, of sufficient length, to which the slender or twining stems should be carefully tied. Syringe the foliage, over and under, and plunge the pot in a mild bottom heat; suppose it to be the back part of the bark bed of a pine stove, when the heat is very mild. Before the plant begins to run rapidly, it ought again to be shifted into a pot of eight or nine inches diameter. It may then be trained to some of the columns, or other supports, and directed in any way most convenient to the arrangements of the house. When the plant is trained to the columns, which are, of course, fixed, it is desirable to attend to the plant, in order to prevent it from suffering injury by the subsiding of the bark bed. When this takes place, the pot continues to settle with the bed, and the plant, in such cases, not unfrequently becomes what is termed "hanged," or drawn out of the pot, and broken at the neck. It does well, too, trained to a wire framework.

By treating this plant in the manner described, I have seldom seen anything more ornamental. I have had it continue in one mass of scarlet tube-shaped flowers for months together.

CULTURE OF CEREUS, EPIPHYLLUM, AND OTHER CACTÆA.

BY HORTULANUS, OF THE ROYAL GARDENS AT KEW.

I do not know any plants that are more beautiful and ornamental when in bloom, and certain to produce flowers, than the above named are.

Previous to my coming here, I had a plant of *Cereus speciosissimus* that had, at one time, 264 blossoms upon it.

My mode of treating this, and most of the fine flowering kinds, is very simple. I grow them as rapidly as I can during the early part

of the summer, and when they have made their shoots and finished blooming, I pot them into fresh soil, which should be rich and stiff. I use pieces of clay, manure, leaf-mould, sand, brick-dust, and turfy loam, none of which are finely broken, and are put round the roots of the plant, without being pressed down. This is then well watered, and the plants are set in some cool shade for a week or ten days; they are then plunged in sand out of doors, fully exposed to the sun. The roots are kept moist and cool, but not wet. They are allowed to remain here till towards autumn; they are then brought into the greenhouse and placed in the coolest end, either on shelves or stages. Here they are allowed to become very dry. About the month of April they are removed into the vinery or plant stove, as the case may be. They are watered freely, and being submitted to a very gentle temperature, which becomes gradually higher, the plants generally bloom most abundantly towards the end of May or beginning of June.

CULTIVATION OF SCHIZANTHUS HOOKERI AND RETUSUS AS BIENNIALS.

BY THE FOREMAN OF A LONDON NURSERY.

Few annuals are more beautiful, or deserving greater attention and care, than *Schizanthus Hookeri* and *retusus*. I beg, therefore, to have put on record the following remarks descriptive of the method adopted in this extensive nursery, and which has in this instance been attended with unexpected but astonishing success.

The seeds were sown in the open ground, in a cold open situation, about the end of March or beginning of April, 1836. The plants were allowed to stand a foot or fifteen inches apart, and this induced them to throw out a number of short lateral branches from quite close to the ground, the largest of which did not attain to more than three or four inches in length when winter had arrived. Part of the plants were lifted in the course of the autumn, with large boles of earth to each, and placed in pots about nine to twelve inches apart; they were placed close to the front sashes of a large airy greenhouse, and sparingly supplied with water. In this way they survived the winter in a very healthy condition, and have now been in flower upwards of two months. The largest plant is four feet in height, and of nearly equal breadth, with seventy to eighty principal branches clothed with innumerable flowers of unsurpassable beauty.

The plant itself may be justly regarded as a hardy biennial, for notwithstanding the unusual severity of the past winter, and the large and forward state of the plants, most of those left in the open ground were but little injured, until carried off by the intense and almost unprecedented cold of April, and the latter part of the month of March.

GRAFTING PELARGONIUMS.

BY A LONDON AMATEUR CULTIVATOR.

HAVING paid considerable attention in grafting these beautiful flowering plants, both as standards and dwarfs, I forward for insertion, in an early number, the particulars of my mode of treatment. It is not only for the novel and interesting appearance of the plants, having several distinct varieties on the same stem, that I recommend this mode of culture; but it will be possible to grow four times the number of varieties in the same house, to equal perfection, and in some cases (particularly the weak growers) I think better, so that the proprietors of small greenhouses, instead of throwing away annually many of the good old kinds, to make room for new ones, might graft half a dozen or more upon one stem, for the sake of preserving them.

It is requisite to select a few of the healthiest and strongest grown plants, two or three years old, with as many shoots on each as can be found. I do not recommend *older plants*, for they never grow so well as young ones. I have generally put in a few cuttings of the *strongest growing* kinds for stocks, and potted them off as soon as struck root; then placed them in a frame and shaded, until they have made fresh roots, when I pinch off the leading shoots to keep the plants dwarf, and make them push lateral ones. After they begin to grow, a little manure-water occasionally is of service to them, as it will make them grow much stronger, and the success of grafting a great deal depends upon having *well-grown stocks*. I repot them into a size larger pots in the course of summer, and cut them down in August to within three eyes of the base of each shoot, and treat them the same as the other plants.

The stocks are repotted into a size larger pots, about a month before they are wanted to graft upon, and cut down to a clear grown part of the shoot, about two inches from the last year's wood, two or three days previous to grafting, to allow the exuberant sap to escape. The operation may be successfully done from March to August, but I have generally found them do *the best* in June or July, as both stocks and scions are much *firmer* than they are at an earlier period of the year, and, consequently, not so liable to rot—a disease the operator will find to be the most difficult of any that he will have to contend against. After the stock has done bleeding, the operator must select a number of well-ripened shoots, about three inches long, for *scions*, which ought to be from as *dissimilar* kinds as possible, and much of the same habit; for if *strong* and *weak* kinds be put upon the same plant, the strong kinds will injure the weaker ones. There must be no more leaves dressed off than possibly can be avoided. I have tried several different methods of grafting them, but have always found that side or whip grafting, *without the tongue*, to answer best; for if they be put on with a tongue, it generally rots, and either

causes a bad joint, or the death of the shoot altogether. The operator must have a sharp knife (the thinner the better), some damp moss, and ligatures of cotton wick or bass matting; then make a sloping cut *through* the *scion*, about an inch and a half long, and a similar cut upwards in the *stock*, but no deeper than to admit the inner rind of the bark in the scion to touch both sides of the bark in the stock; tie them together, taking care not to bruise the bark, as that would cause the shoot to rot; then take a little moss, and tie it pretty tight round, about an inch above the wounded part, and increase it to the size of an egg, and so proceed with the rest of the shoots. After they are all done, remove the plant into a gentle *hot-bed* or pit, or into a greenhouse, and shade them until they begin to grow; sprinkle them with water once or twice each day, to prevent the moss becoming dry; it will, too, encourage the shoots to grow. After they begin to grow, the moss may be unloosed, and laid loosely on again for a few days longer, when it may be taken away altogether. If any of the shoots appear to be twitched, they may be unloosed and tied over again rather slacker: it will require great care, as they are very tender for a long time after they are united, and are very easily broken off. It will be necessary, too, to put a support to each shoot, to prevent the wind, or anything else breaking them off; finally, remove them to the greenhouse, and attend to them the same as the other plants, their beauty and striking contrast will be the admiration of all who see them.

MANAGEMENT OF PLANTS IN DWELLING-ROOM WINDOWS, ETC.

BY MR. GEORGE ELLIOTT, OF NALVERN.

A GREAT deal has been said and written about plants in windows, some asserting their tendency to injure health, and others the contrary. There is one point, however, in which I think all will agree, and that is, their beautiful appearance. Whether in the splendid halls and drawing-rooms of the wealthy, or in the humble cottage of the poor, there can be but one opinion respecting their appearance. What artificial splendour can compete with a number of handsome flowering plants in the windows of our rooms? Certainly none. Their beautiful greenleaves, contrasted with their blossoms of various forms and colours, present an appearance altogether beyond the reach of art; and during the winter months, when the ground is covered with snow, and the gardens present an appearance more of desolation than beauty, the trees all leafless, and the flowers cut down by the frost, *then* what a feast is presented by plants blooming away in your house (heedless of the chilling blasts without), enlivening the dreariness of winter, spreading an odoriferous perfume through your apart-

ments, and rivalling in beauty many of those tender kinds, which only delight us with their fragrant flowers during the genial summer weather, not able to bear up against the chilling and frosty air of winter. With regard to the choice of flowers for windows, of course, that is a matter of taste; but for the cottager, I think, he will find the Scarlet and other Pelargoniums, Begonia, Cineraria, Crassula, Acacia, Corœa, Camellia, Heliotrope, Canna, Salvia, Azalea, Myrtle, Lobelia, Nerium, Coronilla, Hoya, Gloxinia, Cytisus, Fuchsia, Hydrangea, Chinese Primroses, Cactus speciosa, and Monthly Roses, to be not only cheap but elegant acquisitions to his apartments. We will now proceed to consider the principal question on the subject, viz. :—Are they beneficial or injurious to health? And I shall endeavour to show clearly and upon philosophical principles, that in moderate quantities they are decidedly healthy. Our atmosphere is simply a mixture of oxygen, or vital air (so called, because no animal can live without it), and nitrogen (called azotic gas, because it would immediately deprive any one of life who was to breathe it), with an exceedingly small quantity (about 1 part in 1000) of carbonic acid gas, which is also poisonous, and, of course, several adventitious substances, such as watery vapour, etc. Now, in breathing this atmospheric air, man and all other animals retain the oxygen which enters into the blood, and return the nitrogen, which being lighter than the air ascends, and waits for fresh combinations. Thus man deprives the air of its constituent which supports life, and returns the poisonous part; on the contrary, plants (not flowers only, but plants generally) give out during the day a large quantity of oxygen, which combining with the nitrogen, which man exhales, preserves the equilibrium, and re-forms atmospheric air. Here, then, we see that “the plant purifies what the animal had poisoned.” The loss of the vast quantity of oxygen which is absorbed by the breathing of animals, would soon render the air totally unfit for our use, if the Almighty Framers of the universe had not, in his infinite wisdom, appointed an antidote in the vegetable creation. This is, I think, a sufficient evidence that plants in rooms are decidedly healthy; but when I state this, I must also assert that in bedrooms they are exceedingly deleterious, as during the *night* many plants give out carbon instead of oxygen, and by that means, instead of purifying the air, help to poison it. The fact that man exhales air unfit for being re-breathed is too clear, and too generally admitted, to need an experiment; but perhaps it may be as well to mention one—as some readers of this article may be sceptical on this point—to show that during the day plants give out oxygen; I therefore select the following from Parke’s “*Rudiments of Chemistry* :”—“Invert a glass bell full of water in a flat dish of water, and introduce leaves under it. Expose the apparatus to the sun’s rays, and very pure oxygen gas will be disengaged, which will displace the water in the glass, and occupy its place. In like manner, a sprig of mint corked in a small portion of carbonic acid gas, will render it capable of supporting life.” Thinking, as one of our present authors

writes, that "Floriculture is amongst the most innocent and humanising of all pleasures," and that "everything which tends to diffuse such pursuits amongst those who have too few amusements, is a point gained for happiness and for virtue," I consider it a duty which I, as a Floriculturist, owe to my favourite recreation, to endeavour to remove that prejudice which so generally exists against flowers in windows, by showing that (except in sleeping apartments) it is destitute of foundation; and further, by proving, on chemical and philosophical principles, that they are not only interesting and beautiful, but actually conducive to the salubrity of the atmosphere.

MANAGEMENT OF THE BOUWARDIA TRIPHYLLA.

BY A NOBLEMAN'S FLOWER GARDENER.

ABOUT the middle of April, collect all the Bouvardias together from the places where they have been kept through the dormant season: some amongst the orange tubs, others in cold frames, and others under the stage of the greenhouse.

Turn them all out of their pots, and shake the soil completely from the roots; thin off most of the large roots, yet retain as many of the fine fibrous ones as possible. At the same time, cut down all the former year's shoots, retaining only two, three, or four eyes on each, according to the age or strength of the plant.

Plant them in pots suitable to the size of the plants, taking care never to overpot them, nor to cramp the roots by confinement.

When potted, water them to settle the earth about their roots, and place them in a cold frame, covered with hay and mats at night; keep the lights close during the night, and even in the day (unless the sun be very strong upon them), till they begin to grow; then give them portions of air, according to the day, and their advance in growth. Subsequently, leave the lights off through the day, and lastly, do not put them on at night.

In about a week after they have been thus exposed, plant them finally out for the season, either in clumps by themselves, or distributed among other plants, after which they are soon in fine bloom, and continue to flower till Christmas. By the autumn, some of the year's shoots will have attained nearly a yard in length, and will be crowned with fine luxuriant clusters of splendid trumpet-like flowers.

As soon as frost is apprehended, take up the plants with balls of earth attached to their roots, disturbing the young growing fibres as little as possible, and place them carefully in pots that will admit of a little good mellow soil under the ball, and around it.

When they are thus carefully replaced in pots, and watered so as to settle the mould, those which are in luxuriant bloom may be mixed amongst the greenhouse plants, where they will make a splendid appearance till January. I have bushy plants two feet and upwards

high, and as much across, covered with a profusion of their rich red and scarlet trumpet-like blossoms.

When the plants begin to shed their leaves, and the flowers are nearly gone, put them out of sight, as mentioned above, until April.

This treatment may be continued with the same plants for many years; for the application of fresh soil, the trimming of the old roots, the great luxuriance gained by growing, without confinement of their roots, in congenial soil in summer, renovate the plants, which could not be effected by any other means of culture.

Bouvardias are propagated by cuttings of the roots, which are managed as follows:—fill some large fruiting pine pots with good, fresh, mellow loam, well blended with either thoroughly rotten dung or vegetable mould.

Plant the roots all over the pot, beginning in a circle round the outside, opening the soil and planting them with the finger, continuing to fill up one circle within another, till it is finished in the centre of the pot, leaving no more of the root visible above the surface than just at the top.

When planted, water, and place them in a hothouse, where the temperature at night is kept between 60 and 70 degrees Fahrenheit.

As soon as the shoots have grown to between four and five inches high, transplant the plants singly into pots of a small size, and by degrees harden them, after they are established.

When they have made some progress after this transplanting, plant them out into a bed, four feet wide; place the plants in rows, eight inches apart, and four inches from plant to plant in the rows, where, if the soil be good, they will soon be in flower. Pot them again before frost, and treat them as directed for the older plants.

POT-CULTURE OF THE FOLLOWING BULBS, EITHER FOR FLOWERING IN THE POTS OR TURNING OUT IN THE BORDERS EARLY IN THE SPRING.—In the month of October, examine the roots and separate the offsets from them, pot them in light turfy loam and sand, with good drainage, putting a layer of well-rotted cow-dung at the bottom of the pots the strong-growing varieties of Gladioli are to be planted in. Prepare a bed of dry old tan and litter from the stable and place a frame on it, in which plunge the pots, the Gladioli at the back, and Ixias, Sparaxis, Tritonias, Babianas, Oxalis, Lachenalias, etc., in gradation to the front; give plenty of air in fine weather, and withhold water until the bulbs have made root and the leaves appear, and it must then be carefully given when there is no danger of frost. Should the winter prove very severe, bank the frame up well with dung or litter, and cover the lights with straw or bass mats. Under this management the Sparaxis will flower in April, the Ixias, Babianas, Gladioli, and Tritonias succeeding one another. After the flowering is past, continue the watering, to perfect the growth of the bulbs, and gradually withhold it as the leaves die away and they ripen. Bag the roots, place them on a dry shelf, and they will be ready to replant the following season.

NOTES ON NEW AND SELECT PLANTS.

1. *CRESIDENTIA MACROPHYLLA*. Nat. Ord., *Crescentiaceæ*. Syn., *Ferdinandea superba*.—Its native country is unknown; but from its habit we should judge it to be Tropical America. The largest specimen of this plant in England is at the Royal Gardens of Kew, which has attained the height of seven feet; but at the Botanic Garden at Berlin there are some twelve feet high. It has very fine large foliage, measuring fifteen inches in length, and about three inches in breadth. The flowers are produced out of the old wood in pairs, each one about an inch and a half across the mouth, and about two inches long, of a pale yellowish-green. (*Bot. Mag.* 4822.)

2. *ONCIDIUM INCURVUM*. Nat. Ord., *Orchideæ*.—This Orchid was first introduced to our stoves by Mr. George Barker of Birmingham; but since it has been sent from Mexico by P. W. Doyle, Esq., to his brother Colonel North, in whose stove it flowered in October, 1854. Its flowers are produced in branching racemes, white, blotched with pinkish-purple. (*Bot. Mag.* 4824.)

3. *TRICHODESMA ZEYLANICUM*. Nat. Ord., *Boraginææ*. Syn., *Borago Zeylanica*.—A native of Western Australia, introduced by Mr. Drummond, who speaks of it in his journal as follows:—"A fine plant belonging to *Asperifoliæ* appears in great abundance and perfection on the sand banks in the sheltered bed of the Irwin river. It grows to be six or eight feet high, with numerous branches, which terminate in panicles of large light blue, borage-like flowers. The plant is a perennial, with a sort of woody stem, five or six inches in diameter (circumference?) near the ground. It rises readily from seed, and would be a great ornament to the gardens and shrubberies of Perth." Only a few plants have been reared in pots in a warm greenhouse, of comparatively small size. Probably it will flourish in the open air in summer. (*Bot. Mag.* 4820.)

4. *NYMPHÆA AMAZONUM*. Nat. Ord., *Nymphæaceæ*. Syn., *Nymphæa fetida*.—This species was sent by W. T. March, Esq., of Spanish Town, Jamaica, to Mr. Moore, of the Botanic Gardens at Dublin, under the name of *N. nocturna*, but Sir W. Hooker has identified it as *N. Amazonum*. The flowers are very fragrant, of a yellowish-white, about four inches across. The sepals are of a pale yellowish-green. It opens its blossoms about eight or nine in the evening. The foliage is not very large, each leaf being about four inches across, bright green, under side purple. (*Bot. Mag.* 4823.)

5. *EPIPOGON GMELINI*. Nat. Ord., *Orchideæ*. Syn., *Satyrium Epipogium*.—A new British plant, discovered on the 9th of September, 1854, by Mrs. Anderton Smith, at Tedstone Delamere, Herefordshire. "All the specimens were found at the foot of a very steep woody bank, close to a brook; the soil very wet and stiff." It having remained so long undiscovered in England, and even still considered rare on the Continent, is no doubt because of its having no foliage

and no very conspicuous colours in the flowers. It was first known as a Siberian plant a little more than a century ago, and figured by Gmelin. It is observed by M. Schlauter, "that the plant does not appear annually in the same spot, but every two years—the swollen branches of the root eventually becoming new flower-stems, and requiring two years to be perfected." It grows about nine inches high. Flowers of a pale sulphur yellow, with small red spots, four or five in a raceme. (*Bot. Mag.* 4821.)

6. *AZALEA INDICA VITTATA PUNCTATA*. Nat. Ord., *Ericaceæ*. Mr. Fortune sent this handsome species from China to Messrs. Standish and Noble of Bagshot, in whose establishment it has bloomed during the last season. It is of medium habit, grows freely, and blooms profusely. The flowers are large, white, with delicate streaks of rose; the three upper petals most numerous spotted with large deep rose spots. It is a very showy and handsome plant, but the flowers are not quite so good in form as some of the hybrid varieties; it should, nevertheless, be in all collections of this most showy genus. (*L'illus. Hort.* pl. 20.)

7. *PELAGONIUM HEDERÆFOLIUM*, var., *Kermesinum*. Nat. Ord., *Geraniaceæ*.—A handsome variety belonging to the *Ivy-leaved* section. The flowers are somewhat the same in size and shape of the old pink variety, but of a rosy crimson, and produced in *abundance*. It is a good bedder, and when placed in contrast with the white and pink, will have a pleasing effect. The foliage is of a rich green. (*L'illus. Hort.* pl. 22.)

8. *FRANCISCEA MACRANTHA*. Nat. Ord., *Scrophulariaceæ*.—This noble and splendid species was first introduced by M. Mathieu Libon, collector to M. De Jonghe of Brussels, notwithstanding the researches of many other eminent collectors who had preceded him in the same country, who doubtless never met with it in flower. It was discovered growing in a large ravine, near Villa Franca, in the province of St. Paul, Brazil. It is very vigorous, and fine in foliage and flower. The flowers are produced in terminal heads of from four to six in each; a single flower being three inches across, of a pale rosy-purple. It is exceedingly worthy of cultivation. (*L'illus. Hort.* pl. 24.)

9. *ISMENE AMANCAES*. Nat. Ord., *Amaryllidaceæ*. Syn., *Panoratrium amancaes*.—A stove bulb, introduced as far back as 1804 from Peru. It is remarkable for its powerful and delicious odour; its flowers are large, about three inches across, pale yellow, with six green stripes. (*L'illus. Hort.* pl. 28.)

10. *CHORIZEMA SUPERBUM*. Nat. Ord., *Fabaceæ*.—Mr. Cunningham, nurseryman, Edinburgh, received seeds of this beautiful species from New Holland. It is remarkable for the length and abundance of its handsome flowers; it is somewhat similar in flower to *C. cordatum*, but far superior in profusion. The wings are deep orange, keel, rosy red; each raceme is about six inches in length. It is a great acquisition to the genus. (*L'illus. Hort.* pl. 29.)

11. *LÆLIA PURPURATA*. Nat. Ord., *Orchidaceæ*.—This magnificent

species was first introduced by M. François De Vos, the collector for M. Ambroise Verschaffelt of Ghent, Belgium, who received it in 1847 from the island of St. Catherine, Brazil, and Messrs. Backhouse of York bloomed and exhibited it at one of the Horticultural Society's meetings in 1852. The flowers are about eight inches across; the petals and sepals are white, the former being broad. The labellum or lip is four inches long, and rolled round the column, forming a tube, which, at its terminating limb, is three inches across. The lip is yellow in the centre, veined with crimson; the limb is of the richest velvety purple. A most magnificent Orchid, meriting universal cultivation. (*L'illus. Hort.*)

12. *QUERCUS PEDUNCULATA* (?), var. *filicifolia*. Nat. Ord., *Cupuliferae*.—Our parks and gardens have recently been enriched by an extremely remarkable variety of oak, with leaves of great length, very much lacinated; altogether, it would make a singular ornament. It was procured almost at the same time by Messrs. A. Topf, nurserymen, of Erfurt, and James Booth & Co., at Hamburg. They say that it was discovered on the mountains of Southern Germany. It differs exceedingly from the old fern-leaved oak, *Q. heterophylla laciniata*, having a much finer and more hairy foliage. (*L'illus. Hort.*)

13. *LOBELIA GHIESBREGHTII*. Nat. Ord., *Lobeliaceae*.—In June a new species of Lobelia was brought under our notice by Mr. A. Van Geert of Ghent, who cultivated it under the name here given. It is a native of Mexico, where it was found in the province of Michoacan by M. Ghiesbreght, who sent seeds last year to M. Linden. It is a half-shrubby growing plant of curious habit. The flowers are numerous, of a rosy-lilac, with a white eye, disposed in terminal branching racemes. The tube of the flower is about two inches long; the petals are narrow. It is very distinct, and will bear the open air in summer. (*L'illus. Hort.* pl. 34.)

14. *LACÆNA BICOLOR*, var. *glabrata*. Nat. Ord., *Orchidaceae*.—This species was discovered by Mr. Hartweg, on the mountains of Salama, in the province of Vera-Paz, and near the villages of Seniel and Quezaltenangs, where it grows on the rocks, at an elevation of 7000 feet above the sea. It is a pretty plant, and merits the attention of amateurs of this class of plants. The flowers are produced in a raceme, the petals and calyx are pale sulphur, and the labellum dark purple edged with white, each one about an inch and a half across. (*L'illus. Hort.* pl. 33.)

15. *GLOXINIA PRINCESSE DE PRUSSE*. Nat. Ord., *Gesneriaceae*.—A very distinct and truly beautiful variety of the habit of *G. Fyfiiana*. It was raised by M. F. A. Haage, nurseryman, of Erfurt, who has paid considerable attention to the culture and hybridization of the Gloxinia. The flowers are pure white, with a deep crimson throat; they are *erect*. The foliage is distinctly veined. It is a very beautiful variety, and should be extensively cultivated. (*L'illus. Hort.* pl. 16.)

16. *RHODODENDRON ARBOREUM*, var. *speciosum*. Nat. Ord., *Ericaceae*.—M. A. Verschaffelt has occupied himself for a length of

time in cultivating this beautiful genus of plants with great success. The present is a hybrid raised between *B. Woolerii* and *B. cinnamomum*. It first flowered in 1851; it is a flower of the first order. The flowers are pure white, densely spotted in all the petals with rose and crimson; each flower is two inches across, and forming a head of eight or nine inches in diameter. A truly splendid variety, and ought to be in every collection. (*L'illus. Hort.* pl. 1.)

17. *MONOCHÆTUM UMBELLATUM*. Nat. Ord., *Melastomaceæ*.—The prettiest of the genus, originally discovered on the borders of the Orinoco, by MM. Humboldt and Bonpland, but we owe its re-discovery to MM. Funk and Linden, in 1842. "It grows," says M. Linden, "on the temperate side of the chain of mountains which border the coast of Venezuela, at an altitude of 5000 feet above the sea." It was introduced by MM. Funk and Schlim, in 1846. The flowers are bright rose, about three inches in diameter, produced in umbels of from six to eight in each. It is exceedingly showy, and merits a place in every stove. (*L'illus. Hort.* pl. 11.)

18. *AZALEA BEALII* (HYBRIDA?). Nat. Ord., *Ericaceæ*.—Mr. Fortune found this Azalea growing in the gardens of the Chinese, from whence he introduced it to the nursery of Messrs. Standish and Noble of Bagshot. It is thought to be a hybrid; its blossoms are produced in great abundance, and are of a pure white, striped with a beautiful rose. It is remarkably handsome and distinct. (*L'illus. Hort.* pl. 8.)

19. *BERBERIS NEUBERTI*. Nat. Ord., *Berberidaceæ*.—This Berberis was received in 1850, by M. Bauman, nurseryman, of Bolwiller, France. It is evidently a cross between *B. atropurpurea* and *B. aquifolia*. The foliage is very spinous and glabrous; it is of distinct habit, and very fine. (*L'illus. Hort.*)

20. *BLANDFORDIA FLAMMEA*. Nat. Ord., *Asphodelææ*.—Syn. *Tritoma flammea*.—All the Blandfordias are handsome, and the species now under notice is the most beautiful and distinct. It appears to have been introduced from Hunter's River to Sydney. Mr. Backhouse gathered specimens of it at Port Macquarrie, and Mr. Bidwell at Wide Bay, in North-east Australia. The leaves are long and narrow, much like those of the old plant "Kings-speare." The flower-stalk rises from the centre, two to three feet high, terminating in a raceme of from eight to fifteen, or more, beautiful bell-shaped, drooping flowers. Each blossom is about two and a half inches long, and one and a half across the mouth; of a light scarlet, with a broad margin of rich orange around the six-parted mouth. It will succeed well in the open ground in summer, but does best when treated as a greenhouse plant. It is a charming species, and has bloomed freely at the Dublin Botanic Garden. (*Bot. Mag.* 4819.)

MISCELLANEOUS.

STOKE NEWINGTON CHRYSANTHEMUM SOCIETY'S EXHIBITION FOR 1855.—This celebrated Show was held at the Manor Rooms, West Hackney, on November 21st, and was of first-rate excellence, superior to any of its predecessors.

Six best Specimens of the Large-flowered Section.—1st Prize (a silver cup), awarded to Mr. Gifkins, gardener to P. Johnson, Esq., for the following six varieties:—Mount Etna, Queen of England, Christine, Defiance, Madame Camerson, and Annie Salter. 2nd, to Mr. Holmes of Hackney, for Defiance, Mount Etna, Christine, Annie Salter, Chevalier Dumage, and Pilot. In the 1st, the Madame Camerson, was five feet across (diameter), and Christine, in the 2nd, was six feet in diameter. All the above were in fine bloom, and the Annie Salter in the 1st collection was considered the most *superb specimen* of the whole exhibition.

Six best Pompone (or Minima).—1st Prize, to Mr. Scruby, for Madame Rousselon, Dame Blanche, Modele, Drine Drine, Cedo Nulli, and Autumnum. 2nd, to Mr. Goodenough, for Modele, Cedo Nulli, Autumnum, Solfaterre, Surprise, and Ninon.

Cut Flowers of Large-flowered Section.—There were nine collections of *Twenty-four Blooms*. 1st Prize (silver cup), to Mr. G. Taylor of Hackney for, Racine, Queen of England, Madame Andry, Themis, Campestroni, Nonpareil, Duke, Defiance, Beauty, Rolla, Plutus, Trilby. Aregina, Formosum, Rosa Mystica, Cyclops. Two coloured incurved, Dupont de l'Eure, Versailles Defiance, Golden Cluster, Arc en Ciel, Gem, Leon Lequay, Annie Salter. The other eight collections contained fine flowers, but consisted (nearly entire) of the above superb varieties, we therefore omit a repetition of the names.

Twelve Blooms.—1st Prize (silver cup), to Mr. Hutton, for Queen of England, Nonpareil, Defiance, Dupont de l'Eure, Formosum, Rosa Mystica, Strafford, Gem, Plutus, Campestroni, Aregina, and Themis. There were thirteen other collections shown in this class.

Six Blooms.—1st Prize, to Mr. E. Sanderson, for Plutus, Queen of England, Gem, Themis, Leon Lequay, and Rosa Mystica. There were thirteen other collections shown in this class.

Six Anemone-flowered.—1st. Prize, to Mr. G. Taylor, for Nancy de Sermet, Madame Godereau, Marguerite d'Anjou, Fleur de Marie, Marguerite de York, and Gluck. There were six other collections shown in this class.

In the class for persons who had not previously obtained a prize, there were four collections of *Six Blooms* shown. 1st Prize, to Mr. James Stapleton of Stamford Hill, for Rosa Mystica, Dupont de l'Eure, Queen of England, Nonpareil, Themis, and Beauty.

Many of the flowers shown were as large as medium-sized

Dahlia blooms, five inches, or upwards, across, and of a full double. The varieties of the large-flowered class which were most numerous in the winning collections were, Queen of England, Themis, Leon Lequay, Dupont de l'Eure, Nonpareil, Defiance, Plutus, Rosa Mystica, Beauty, Annie Salter, Christine, Versailles Defiance, Racine, Madame Andry, Mount Etna, Gem, Madame Camerson, and Formosum. The beauty and excellence of the flowers exhibited could only be duly estimated but by viewing them congregated together; they were indeed magnificent, highly creditable to the skill of the growers.

The Society deserves the liberal patronage and *cash support* of all lovers of fine flowers in and around the metropolis.

BRIEF REMARKS.

PROPAGATION OF HOLLYHOCKS.—Early in November is the best time to obtain cuttings from the crown of the roots, they strike better then than at any other period; put one cutting into each sixty-sized pot, in a light sandy soil, and place them where there is a *gentle* bottom heat, and in three weeks they will be rooted; then remove them into a cold frame, where protection can be given from frost, but have plenty of air on all other occasions; then turn them out into the open ground about the middle of March, and give a liberal supply of water in proportion to growth. If summer-struck cuttings are now (November) in small pots, put them in one or two size larger, to prevent them pushing blooming stems, and give them abundance of air.—(*A London Exhibitor.*)

CHRYSANTHEMUMS (Pompone or Minima varieties).—Mr. Robinson, gardener to J. Simpson, Esq., Thames Bank, Pimlico, London, is perhaps the most successful cultivator of this section of Chrysanthemums we have in Great Britain. His plants are remarkable for their *dwarf* bushy character, most of them being from a foot to eighteen inches high, and from eighteen to twenty-four across, producing a *vast profusion* of bloom.

The soil which Mr. Robinson uses is one-half rich turfy loam, one-fourth horse and cow manure, in equal parts, well decomposed, and a small portion of silver sand. In the second week in April he fills a sufficient number of thumb-pots with light rich soil, takes off strong healthy cuttings, and places *one* in each pot, and plunges the pots in a frame where they have a brisk bottom heat, keeping them *close*, and frequently sprinkling them overhead, so as to prevent them drooping. When it appears they have just struck root, air is proportionately admitted. When sufficiently rooted he shifts them into four-inch pots, giving them bottom heat, and kept close for a week; then air is *freely* admitted, to keep the plants robust, and when well rooted, again he shifts them into five-inch pots, and fully exposes them to sun and air. When the plants are well rooted, he cuts back the tops to about three or four inches from the soil, which induces the pushing forth of side shoots, and forms them into *bushy* plants. When the new shoots are pushed an inch or so, he repots into six or eight inch pots, in which the plants bloom. When well established, he gives weak manure-water twice a week, and the pots are plunged half their depth in the open ground, where they remain till the flower-buds are well formed, nearly showing the petals, and then taking them under glass in pits, frames, or houses. It often happens that at this stage *green fly* attacks Chrysanthemums, Mr. Robinson has his stock of plants fumigated twice with tobacco. The blossoms expand fully and freely, and the plants exhibit the *ne plus ultra* of excellent management during October, November, and December.

After taking off cuttings in April he turns out the old plants into the open ground or bed, where they bloom beautifully, and are highly ornamental during autumn.

CHINESE PRIMROSES.—"I have a fine collection of these now beautifully in bloom, and nothing could possibly be more cheerful or delightful than their appearance is at this period of the year and during winter. They are not half so much grown as they deserve to be; the following is the method I pursue in their treatment, which may be useful to amateurs or others." Seeds may be sown in succession in May, June, and July, to furnish a supply throughout winter and spring. Let them be sown in light sandy soil, and placed in a moderate hotbed frame, or an ordinary greenhouse will do; as soon as the plants are large enough, prick off into either pots or pans, and place them near the glass, to prevent them being drawn weakly. As soon as fit, pot them *singly* into thumb-pots, giving increased air; when established, place them in a cold frame, kept rather close at first; after, give more air, and shift progressively until they are in six-inch pots, or if required to have extra-sized plants, then into eight or ten inch ones. The soil must be gradually increased in its strength at each shift, until it is *equal* parts of loam, peat, and leaf-mould, mixed with a little sand and finely sifted charcoal. The pots must be well drained, as the plants require liberal waterings. They may remain in the frame until the approach of frost, and then be taken into the greenhouse. Those of the first sowing will be in bloom early in October; the second by Christmas; those of the third (or July sowing) should be *wintered* in five-inch pots, and any premature flower-stems appearing should be pinched out, also be finally repotted early in February. As there may be danger of the *collars* of the plants being affected by damp during dull weather in winter, they may be occasionally supplied with water from *below*. In this way, and by giving abundance of light, air, and water, handsome plants, with rich-coloured flowers, will be produced, which, mixed with a few common things, as Cyclamens, Tree Violets, Lily of the Valley, Crocuses, Snowdrops, and Winter Aconites, all easy of cultivation, would make a basket at any season fit for a drawing-room.—(*W. E., Gardener's Chronicle.*)

FLORAL OPERATIONS FOR JANUARY.

FLOWER GARDEN.—*Annuals* sown in autumn must be kept free from fallen leaves or other litter, or will rot; and towards the end of the month, if fine, sow a few more either in small pots kept in a cool frame, or sow in the open ground in patches, covering deeper than done in spring. *Bulbs*, protect beds of, for if the embryo flowers, or leaves, even within the ground, be affected by frost, their blossoms will be defective. *Flower-beds* must have an addition of one-third of fresh loam, with some leaf-mould, or well-rotted manure; this will induce the plants to bloom more profusely. The upper part of the bed, in which robust-growing plants are to be, should always be richest, to encourage the plants to grow rapidly at first, and the bottom portion being poor, when the roots push into it, the growth of foliage will be checked, and the bloom will produce a finer display. *Dahlias*, to propagate early, put the roots into pots or beds, where bottom heat can be given immediately; the plants will be strong by the end of April. *Gladioluses*,—such as *Gandavensis*, *Psittacinus*, and their varieties; plant a few to succeed the autumn-planted, and do so in February, March, and April, and a bloom till November will be had. *Pinks* and *Pansies*, small sticks should be pricked among the shoots to prevent the wind twisting the plant off. Let the soil be pressed closely round the main stem. A low hedge of fir, or yew branches pricked in at the edge of the bed will check strong winds. Those in pots give plenty of air. *Hares* and *rabbits* are enemies to *Pinks* and *Carnations*; if a good sprinkling of soot over the foliage be applied, the plants may be saved. *Carnations*, *Auriculars*, etc., in pots, must have all dry air allowed, and save them from frost and excess of water. The like attention must be paid to all tender or half-hardy plants, in pots or frames; guard against wet, and remove decayed leaves. Throw out the soil where the *Ranunculus* and *Anemone* bed is to be, half a yard deep,

so that it may be sweetened prior to putting in the compost in February. *Lobelias*, the tall section, must be kept from frost and nearly dry. *Roses* and *Hollyhocks* plant as soon as possible. *Auricula* and *Polyanthus* seed sow in pots, and place them in a cool frame. *Shrubs*, layers of most kinds may now be made, and cuttings of *Privet*, also all *deciduous shrubs*, may be put in: they will succeed well if put in firmly, and each cutting be cut off close below a bud. Prune *Roses*, protect the heads of tender ones, and if they have their heads washed over with soot and lime liquid, it will kill moss and insects, and promote the health of the plants. *Tulips*, *Hyacinths*, etc., be careful to have the soil closed well around the leaves of such as appear; mild weather will cause some to rise early, protect from frost, but remove the covering at all proper times. *Box*, edgings of it should always be made early in autumn, but if required now may be done. *Verbenas*, give all dry air, and have the soil barely moist; to propagate early, place some in moderate warmth; guard against green fly and mildew. If any tender plants be frozen, sprinkle them overhead with cold water, and place them in a cool shed from frost, but where they will be gradually thawed.

GREENHOUSE.—Except in very foggy weather, give all the air possible, especially where there are *Heaths*, *Epacris*, and *Azaleas*, and *New Holland* plants in general, that are not required to bloom early, and water the plants in the morning that the damp may be dried up soon; apply a little fire-heat occasionally to dry the house, often stir the surface-soil in pots. *Tropæolum*, the *tricolorum*, and other tuberous-rooted, must now be potted, in order to bloom well the coming season. *Fuchsias*, prune in, and repot the large plants required to bloom early; plants now put into higher temperature, will soon push shoots, and furnish a supply for striking, to form the new plants for 1855. *Tropæolum Lobbianum*, *Hookerianum*, and *Triomphe de Gand*, are fine blooming ornaments now. *Camelias*, the soil must be regularly moist, or the flower-buds will drop; give manure-water once or twice a week, thin the flower-buds, if now crowded. *Cinerarias*, watch for the enemy, *green fly*; fumigate immediately one is seen; repot such as require it; also pot off *Alstromerias*, *Isias*, and *Oxalis*, with any other greenhouse bulbous-rooted plants, by the middle of the month. Sow seeds of tender annuals required to ornament the greenhouse early in summer. *Pelargoniums*, spread the branches to form the plant regularly in every part by duly tying them outwards, drawing some down to form it bushy to the rim of the pot. Fumigate the greenhouse stock of plants. *Azaleas*, place the plant of any it is desirable to increase in extra warmth, to induce an early growth, as cuttings strike much the best early in spring, rooting freely in silver sand and gentle bottom heat; the half-ripened new shoots are the best.

FORCING STOVE, FRAME, ETC.—*Achimenes*, place some of them in heat, to bloom early. Give one good watering at first, and then just keep the soil moist till the plants are about an inch long; then pot singly, or a plant or two more in each pot. Also some *Gloxinias*, and *Gesnerias*, for early bloom; do not put them where they will have a strong bottom heat, for if their vegetation be hastened too rapidly, they will be likely to be destroyed. Sow seeds of *Stove-plants*, hard-shelled ones steep in water, heated to 180 degrees; let them remain till the water is cool, then sow. The following plants are excellent for winter blooming, and force well: *Scarlet Geraniums*, *Eranthemums*, *Justicias*, *Aphelandra*, *Poinsettia pulcherrima*, *Achimenes picta*, *Coronillas*, *Ribes*, *Lily of the valley*, *Violets*, *Cytisus*, *Cinerarias*, *Gesneria zebrina*, *Roses*, *Persian Lilacs*, *Chinese Primroses*, *Azaleas*, *Acacias*, *Sericographus*, *Pinks*, *Tree Carnations*, *Cactus*, and *Bulbous tribes*. *Succulents* must have but little water. Sow seeds of *Cockscomb*, *Balsam*, *Globe Amaranthus*, *Salpiglossis*, *Brachycoma*, and *Chinese Primrose*, about the middle of the month, for early bloom. Also, repot *Amaryllis*, *Sprekelias*, etc. Cuttings of bedding plants may be put in, and if the old plants have not a supply, place some in higher heat to push them, such as *Fuchsias*, *Salvias*, *Heliotropes*, *Cupheas*, etc. *Bowwardias* increase best by cutting the roots into bits an inch long, and cover them half an inch with silver sand.



The Floricultural Cabinet.

FEBRUARY, 1855.

ILLUSTRATIONS.

ABIES JEZOËNSIS.

In selecting subjects for our plates, we have always confined ourselves solely to such as were of superior merit, either for their peculiar beauty or highly ornamental character. The one we have given in our present number stands pre-eminent amongst the latter, not only for its elegance of form and stately structure, but also for its large and richly coloured cones, admirably adapting it for adorning the pleasure ground or park. This truly magnificent evergreen fir was introduced to this country by Mr. Fortune, who sent it to Messrs. Standish and Noble, of the Bagshot Nursery.

It is stated by Siebold to grow in the islands of Jezo and Krafsto, in the empire of Japan. In its native habitat it attains the height of 100 feet. The wood, which is light and soft, is used by the natives of Japan to make arrows and domestic utensils. The foliage is of a vivid green, and it is said to remain upon the tree for a period of seven years. This tree furnished with cones, which are rather more than six inches in length, and when young are of a fine purple, forms a splendid object.

REMINISCENCES OF GARDENS.

BY RISCEMARA.

THE eventful year 1854 has just closed, and yet Chrysanthemums, Roses, Evergreen Honeysuckles, Jasminum nudiflorum, Double White Stocks, Aconites, Hepaticas, Christmas Roses, Double Daisies, Coronilla glauca, Pansies, Virginian Stock, Primroses, Polyanthus, the Mezereum, Arbutus, Lauristinus, and Tritoma media, now enliven my borders, making one think winter has departed: the almost entire absence of berries on trees usually loaded with them at this season is a remarkable feature in this vicinity. But my object

in writing this sketch is to allude to rarer flowers. *Hippeastrum aulicum*, or Courtly Knight-Star Lily, greeted me early in last year; it had two stems, each bearing two flowers, and the four were open at the same time. One flower measured eight inches in length, and seven in breadth, and the rest appeared equally large; they were of a salmony-scarlet hue, with green centre and purple stamens, and remained many days in beauty. The same plant, to my surprise, flowered again in the autumn, but with only one stem.

I omitted in my last paper to insert an account of an *Hydrangea hortensis*, grown by a neighbour of mine, who takes particular pains in procuring and cultivating hardy perennials, so that his garden presents an interesting picture of a great variety of this class of plants, and is quite a study to inspect; so few of them being now grown, owing to the preference given to half-hardy showy flowers. This *Hydrangea* measured thirty-six feet round; he did not then count its blossoms, but has cut off, in one summer, eleven hundred heads, mostly from six to nine inches in diameter, and of a bright rose colour. My other omission was, the notice of a visit I paid to Bear Wood, in Berkshire, the property of the Walter family. The lofty but not modern conservatory had in it a very large specimen of the *Acrostichum alciorne*; it stood in a stone tazza, on a pedestal distinct from the other plants, and, thus exhibited, had a truly imposing effect. This property was mostly heath, and when the plantations were well grown, they were thinned, and a large lake formed, grounds laid out, and, at a suitable distance, a handsome church erected, by a lady of the family, now deceased. But I was the most charmed with the ornamental water in the garden, belonging especially to the mistress of the mansion; it was tastefully edged with rockwork, had various indentations, and is decorated with rock plants. There was a romantic walk by the edge, the other side of which was backed by higher rockwork, and above this towered, from the outside, luxuriant *Rhododendrons* and as they were in full bloom, the scene appeared to great advantage. I hope the possessor of this valuable estate will take pleasure in it, and carry out further embellishments.

Last summer I revisited Somerleyton, near Lowestoft, the seat of the late M.P. for Norwich. In the extensive glass houses and on the glass-covered walls there was much to delight and instruct. *Conoclinium hyacinthinum*, with its light purple flowers, was new to me, also the *Impatiens Jerdoni*; *Ipomœa Horsfallii* showed its rich crimson and purple flowers, and the *Clerodendron* its magnificent scarlet ones. The *Gymnogramma chrysophylla* was well grown, also the delicate *Hoya bella*, which I would recommend, from experience, to every one having a greenhouse; it should be placed in the warmest part. *Tacsonia mollissima* presented its curious pink blossoms; *Torenia Asiatica* was trained in an elliptical shape, and being three feet high, its elegant flowers were conspicuously visible. But I must pass over the noble *Heaths*, *Geraniums*, etc., just glance at the *Fuchsias*, eleven feet high, *Dipladenias*, *Allamandas*, *Gloxinias*, *Begonias*,

etc., etc., and pause before the elegant *Bletia Tankervilleæ*, a plant I have had some time, but cannot bloom it; long had it been familiar to me, from its beautiful representation in Thornton's Botany, a large folio work, famous in its day for its coloured plates. The flowers are suspended from the stem at short intervals, and resemble a pink Foxglove fading into white, with yellow throat, surrounded by five sharp-pointed sepals and petals, their interior being a purplish-cinnamon colour, and the exterior white. The *Rhynchospermum Jasminioides* also claimed my admiration. But how shall I describe the winter garden? It is a large space covered with glass, in a sort of oriental style; four hundred tons of iron, we were told, were consumed in its erection. The drawing-room opens into it, and when exhibited in winter, ladies are to enter it from the mansion, without experiencing any change of temperature; it was not quite completed, and deserves an enlarged description.

I must now transport my readers (if I am favoured with any) to Poole, where, at an Exhibition of Art and Industry, highly creditable to the neighbourhood, I first saw the *Campanula Vidalli*; its rich, waxy-like, white flowers hung in pendent bells from a stem about ten inches high. I knew it at once, from the representation of it in the FLORICULTURAL CABINET. I must not linger on the delightful coast scenery of Dorsetshire, its downs and heaths, the sylvan wonders of Studland, the gay garden at the Victoria Hotel, Swanage, or the fertile vale of Encombe, opening to the British Channel, and called, from its verdure, the "Golden Bowl," and in which is the favourite seat of the first Lord Eldon, but with the falling leaf contemplate, in a gentleman's grounds at Wisbech, the *Veronica Andersoni* blooming in the borders, its graceful spikes of white flowers shading into purple. In the conservatory, a beautiful pale yellow *Justicia* with fringed edges was in bloom, and I admired a plant, raised from seed, which had scarlet berries as large as a marble, surrounded at its base by pale green petals; its name was unknown. In the greenhouse of another gentleman there I counted thirty spikes of flowers on the *Salvia splendens*; its effect was beautiful, and reminded me that this bright plant, blooming so late in the year, was not sufficiently cultivated. The Duchess of Lancaster Fuchsia was also very flourishing, and is a great acquisition to this already numerous and interesting tribe.

MANAGEMENT OF GESNERIA ZEBRINA.

BY MR. W. S. PRESTOE, ROYAL GARDENS, KEW.

THIS truly beautiful stove plant is to be found in nearly every collection, yet rarely is it found grown to perfection. I have had plants from two to four feet high loaded with their brilliant orange flowers, and, in conjunction with the beautiful foliage which renders it

so very attractive, there is scarcely a plant to equal it for ornament, particularly in the winter and spring months, if grown well. If the treatment is pursued that I herewith recommend, the cultivator will be rewarded with the desired success.

The tubers should be started into growth during the months of February, March, and April, from which circumstance the plants will supply a succession of flowers from the middle of September to the end of February. They should be started in pans containing a compost of leaf-mould, with a small portion of loam and a liberal sprinkling of silver sand. Pans are generally used, for convenience; but I have found them to succeed best when a single tuber is placed in a three-inch pot, as it does not disturb the young roots afterwards so much as when placed in pans, for even with the greatest care it sometimes happens that the young roots are broken.

When the plants have pushed about two inches they must be repotted into pots a size larger, allowing them plenty of drainage, with a little moss soil spread upon it, in order to keep the soil from washing down amongst the drainage. The soil this time should contain a little more loam than it had for starting them in. Particular care should be taken in watering, never allowing them to lack a due supply, neither should they be so watered as to sodden the soil.

When they have attained about four large leaves, they must be shifted into their final pots for blooming in, and if large specimens are required, there should be four plants placed in each ten-inch pot; if, however, they are not required so large, put two plants in an eight-inch pot, even one will make a beautiful show. The pots should not be too deep, for the roots like rather to spread than go downwards. The soil used at the final potting should consist of one part each of peat and loam, and two of silver sand. The compost must be pressed moderately firm, yet not as some gardeners do that I have seen, who press it as though it was never to be separated again, which is as great an error as it is to allow it to be without any pressing at all.

After the plants are well established, an occasional watering of liquid manure will very much contribute to promote their vigour, especially if sheep's dung be used for the purpose.

The temperature best suited for *Gesneria zebrina* is about sixty-five degrees during the day, and ninety at night, yet with *sun heat* it may be allowed to rise from seventy to seventy-five, but not more, if it can be avoided. The direct rays of the sun should also be guarded against during the growth of the plants, as it turns the leaves brown. The atmosphere should not be very moist, especially when in bloom, or the flowers will be injured, and care should also be taken not to allow them to stand in draught of the doorway of the house, or it is liable to cause the buds to fall off before expanding.

If the above directions are duly attended to, it will fully repay for the labour bestowed by a magnificent display of both beauty and ornament. When the flowers have begun to expand, the plants can

be removed to a house of a drier atmosphere, where their charming flowers and foliage will fully display their beauties to advantage, and be the admiration of every beholder. Wherever the exotic beauties of Flora are specially required, there should these lovely and easily cultivated plants be introduced.

THE TALLOW TREE OF CHINA.

BY DR. MACGOWAN.

THE *Stillingia sebifera* is prized for the fatty matter which it yields; its leaves are employed as a black dye; its wood, being hard and durable, is used for printing blocks and various other articles; and, finally, the refuse of the nut is employed as fuel and manure.

It is chiefly cultivated in the provinces of Kiangsi, Kongnain, and Chehkiang. In some districts near Hangchan, the inhabitants defray all their taxes with its produce. It grows alike on low alluvial plains and on granite hills, on the rich mould at the margin of canals, and on the sandy sea-beach. The sandy estuary of Hangchan yields little else. Some of the trees at this place are known to be several hundred years old, and though prostrated, still send forth branches and bear fruit.

In mid-winter, when the seed-vessels are ripe, they are cut off with their twigs by a sharp crescentic knife, attached to the extremity of a long pole, which is held in the hand and pushed upwards against the twigs, removing at the same time such as are fruitless. The capsules are gently pounded in a mortar to loosen the seeds from their shells, from which they are separated by sifting. To facilitate the separation of the white sebaceous matter enveloping the seeds, they are steamed in tubs, having convex, open, wicker bottoms, placed over caldrons of boiling water. When thoroughly heated, they are reduced to a mash in the mortar, and thence transferred to bamboo sieves, kept at an uniform temperature over hot ashes. A single operation does not suffice to deprive them of all their tallow, the steaming and sifting is therefore repeated. The article thus procured becomes a solid mass on falling through the sieve, and to purify it, it is melted and formed into cakes for the press; these receive their form from bamboo hoops, a foot in diameter and three inches deep, which are laid on the ground, over a little straw. On being filled with the hot liquid, the ends of the straw beneath are drawn up and spread over the top, and when of sufficient consistence, are placed with their rings in the press. This latter apparatus, of the rudest description, is constructed of two large beams placed horizontally, so as to form a trough capable of containing about fifty of the rings with their sebaceous cakes; at one end it is closed, and at the other adapted for receiving wedges, which are successively driven into it by ponderous sledge-hammers wielded by athletic men. The tallow

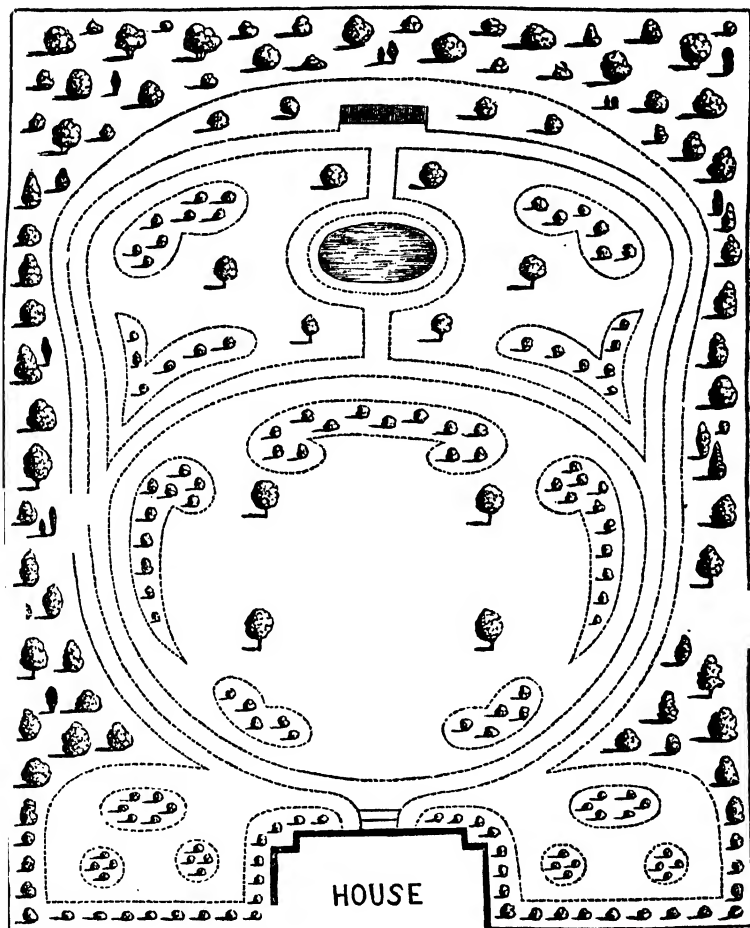
oozes in a melted state into a receptacle below, where it cools. It is again melted and poured into tubs smeared with mud, to prevent its adhering. It is now marketable, in masses of about eighty pounds each, hard, brittle, white, opaque, tasteless, and without the odour of animal tallow; under high pressure it scarcely stains bibulous paper; melts at 140 deg. Fah. It may be regarded as nearly pure stearine, the slight difference is doubtless owing to the admixture of oil expressed from the seed in the process just described. The seeds yield about eight per cent. of tallow, which sells for about five cents per pound.

The process for pressing the oil, which is carried on at the same time, remains to be noticed; it is contained in the kernel of the nut. The sebaceous matter, which lies between the shell and the husk, having been removed in the manner described, the kernel and the husk covering it are ground between two stones, which are heated, to prevent clogging from the sebaceous matter still adhering. The mass is then placed in a winnowing machine, precisely like those in use in western countries. The chaff being separated, exposes the white oleaginous kernels, which, after being stemmed, are placed in a mill to be mashed. This machine is formed of a circular stone groove, twelve feet in diameter, three inches deep, and about as many wide, into which a thick solid stone wheel, eight feet in diameter, tapering at the edge, is made to revolve perpendicularly by an ox harnessed to the outer end of its axle, the inner turning on a pivot in the centre of the machine. Under this ponderous weight the seeds are reduced to a mealy state, steamed in the tubs, formed into cakes, and pressed by wedges in the manner above described; the process of mashing, steaming, and pressing being repeated with the kernels likewise. The kernels yield above thirty per cent. of oil. It is called *Ising-yu*, sells for about three cents per pound, answers well for lamps, though inferior for this purpose to some other vegetable oils in use. It is also employed for various purposes in the arts, and has a place in the Chinese Pharmacopœia, because of its quality of changing grey hair black, and other imaginary virtues.

Artificial illumination in China is generally procured by vegetable oils; but candles are also employed by those who can afford it. In religious ceremonies no other material is used. As no one ventures out after dark without a lantern, and as the gods cannot be acceptably worshipped without candles, the quantity consumed is very great. With an unimportant exception, the candles are always made of what I would designate as vegetable stearine. When the candles, which are made by dipping, are of the required diameter, they receive a final dip into a mixture of the same material and insect-wax, by which their consistency is preserved in the hottest weather. They are generally coloured red, which is done by throwing a minute quantity of alkanet root (*Anchusa tinctoria*), brought from Shantung, into the mixture. Verdigris is sometimes employed to dye them green.

DESIGN FOR A FLOWER GARDEN.

BY T. RUTGER, ESQ.



...EN an open lawn in front of a villa is preferred to a walk through the centre, or otherwise occupied by clumps, etc., the accompanying sketch may perhaps be acceptable to many; the delineation of which will I think explain itself, with the single observation, that the figure at the further end, opposite the pond, is intended to indicate a covered seat.

MOUTAN PÆONIES INTRODUCED FROM CHINA.

BY MESSRS. STANDISH AND NOBLE, BAGSHOT NURSERY.

Of the many remarkable plants imported by us from China, these, if judged by the size and beauty of their flowers, are among the most attractive. In the magnitude of their individual blossoms, in the diversity and richness of their colours, as well as in the profusion in which they are produced, nothing remains to be desired. The following sketch will afford an idea of their general characters. First, of colour: of white there are examples unsurpassed in intensity and clearness by any other flower, not excepting even the old double white Camellia. Of rose colours there are many shades, as well as of purples, and one rivalling the richness of the Tuscan rose. Then there is a pale blush, light red, deep red, salmon colour, primrose, peach colour, and crimson; with various other tints and combinations of these already mentioned. Some of the light-coloured ones have the bases of their petals deeply stained with red or purple; others are delicately shaded. Most of the flowers are very double; some are, however, only semi-double, the latter generally have the petals stained as described. In shape many are finely cupped; more resemble the finest rose, and others have anemone flowers. Of the last named, a white and a deep red are fine examples. In size, too, they are remarkable; some of the flowers produced last season, and from small plants, measured eight, ten, and twelve inches across.

PURPUREA, fine rich purple.

SAMARANG, deep red, black base to the petals.

GLORY OF SHANGHAI, anemone-flowered, white.

DR. BOWRING, rose colour.

THE JEWEL OF CHUSAN, white, base of the petals stained purple.

BEAUTY OF CANTON, light rosy, lilac-shaded.

ATROSANGUINEA, magnificent rich deep purple.

VIVID, bright red.

IDA, French white.

PRIDE OF HONG KONG, clear rich light purple.

OSIRIS, Tuscan rose colour.

SALMONÆA, salmon pink, shaded off to French white.

SULPHUREA, primrose colour.

ROBERT FORTUNE, bright red, nearly scarlet.

THE EMPEROR OF CHINA, rich rosy-red.

HIPPOLYTE, rosy-lilac, shading off to light lilac.

HEBE, very clear white, base of the petals slightly stained with purple.

POMONA, white, base of the petals deep purple.

BERENICE, a beautiful white.

SIR GEORGE DAVIS, rich rosy-lilac.

DIDO, lilac, shaded with rose.

CORNELIA, purple.

ATALANTA, anemone-flowered, deep red.

GLOBOSA, very large, white.

ULYSSES, deep lilac, base of the petals darker.

ODORATA ROSÆA, clear white, and beautifully scented.

CONFUCIUS, very bright red, almost scarlet.

SIR GEORGE STAUNTON, peach colour, shaded.	colour, base of the petals stained with plum colour.
ZENOBIA, dark purple, tinted with blue.	REEVESIANA, deep rich rose-lake.
COLONEL MALCOLM, very large, purple.	LORD MACARTNEY, bright salmon, almost scarlet; a magnificent flower.
CAPTAIN CHAMPION, rich cream	

LIST OF SELECT AND NEW FLORISTS' FLOWERS.

SEVERAL of our correspondents having desired to be furnished with descriptive lists of some of the newest and best florists' flowers for the coming season, in compliance therewith we insert the following, which we are certain will prove true to character, and will be approved of. Want of space has prevented our giving more this month; in our next, however, we shall continue it.

FUCHSIAS.—*Duchess of Lancaster*, tube and sepals white, well reflexed; corolla rosy violet; fine and distinct. *Duke of Wellington (Moor's)*, tube and sepals crimson, with a rosy violet corolla, superb shape. *Empress Eugenie*, tube and sepals of a rosy crimson outside; the sepals are shaded with violet on the inside, and are well reflexed; corolla pure white; new and distinct. *Florence Nightingale*, tube and sepals brilliant scarlet, finely reflexed; corolla pure white; new and lovely variety. *Galanthiflora pleno*, tube and sepals rich velvety scarlet-crimson; the corolla, which is double, is pure white, resembling a fine, large, double Snowdrop, from which circumstance it has received its name; a singularly pretty and distinct new variety. *Hendersonii*, tube and sepals deep crimson; corolla rich velvety purple; very handsome, and will be found a good companion to the last named. *Monarch*, sepals very broad, crimson, with a distinct, large, open corolla of blue violet. *Mrs. Story (Story's)*, sepals long and wide, bright crimson, well reflexed; corolla clear white, of good substance; new. *Omega*, crimson tube and sepals; bright lilac corolla; good form, and very distinct. *Prince Albert (Banks's)*, tube and sepals scarlet-crimson; corolla rich plum-violet. *Queen Victoria (Story's)*, sepals wide, well reflexed, of a bright scarlet-crimson; corolla pure white. *Water Nymph*, a globular-shaped flower, of a bright scarlet-crimson, sepals thick, and stand well open; corolla fine clear white; distinct.

CINERARIAS.—*Constellation*, pure white, with a deep well-defined edge of blue. *Empress Eugenie*, white ground, violet-crimson edging, and a purple disc; a fine flower. *Fascination*, a rich deep blue, with a white circle round the disc, fine form. *Lord Stamford*, pure white, with a beautiful porcelain blue edging. *Marguerite d'Anjou*, maroon crimson, with a deeper disc. *Mrs. Gerard Leigh*, pure white; with a rosy-purple edging, and a blue disc; fine. *Mrs. Rogers*, white, with a rosy-plum edging, dark disc; superb form. *Novelty*, damson-purple, with a light disc; large and fine.

- pure white ground, with a broad edging of rosy-purple, and a lavender-coloured disc; extra fine. *Prince Arthur*, scarlet-crimson; a brilliant flower, very ornamental. *Prince of Prussia*, glossy sky-blue, with a white circle round the disc. *Scottish Chieftain*, white, with a deep plum-coloured edging and disc.

NOTES ON NEW AND SELECT PLANTS.

21. *DIPLADENIA HARRISII*. Nat. Ord. *Apocynææ*.—A magnificent species, discovered by Mr. Purdie, who found it growing on the banks of the Caroni, and to the eastward of Mount Tamaria, in the island of Trinidad. Messrs. Veitch and Son have had the honour of first blooming it in Europe. Its discoverer thus speaks of it:—"This plant is not surpassed by any one of its congeners, whether we consider the size and beauty and fragrance of its flowers of metallic lustre, or its entire habit." The flowers are produced in axillary, terminal racemes, six to eight in each. Each blossom is from three to four inches across; clear yellow. The funnel-shaped tube is tinged externally with red streaks, and internally marked with the same colour, forming bifid rays. There are also five blotches of red on the corolla, around the throat. When in bud it is also exceedingly handsome, being large and drooping, with the red streaks blending beautifully into a clear golden yellow. The leaves are a foot in length, and about four or five inches in breadth. It is like its magnificent companion, *D. crassinoda*, a climber, and will soon become a universal favourite in our stoves. (*Bot. Mag.*, 4825.)

22. *HOYA LACUNOSA*. Nat. Ord. *Asclepideææ*. Syn. *Otostemma lacunosa*.—One of the numerous species of this genus which have been introduced from the islands of the Indian Archipelago. It was found growing on the trunks of trees in the island of Java. In habit it somewhat resembles the beautiful *H. bella*, but the flowers will not bear comparison; they are, however, produced freely, and sweet scented, of a greenish yellow. (*Bot. Mag.*, 4826.)

23. *ESCALLONIA PTEROCLADON*. Nat. Ord. *Saxifrageææ*.—Another reward of the exertions of that indefatigable collector, Mr. William Lobb, who sent it to Messrs. Veitch and Son, of Exeter, where it bloomed in the open border in July, 1854. It is "a decidedly hardy shrub, four or five feet high, an abundant bloomer, and fragrant." In foliage and habit it resembles the small-leaved Myrtle, and in flowers an *Epacris*. It appears to be an abundant bloomer, producing the flowers on the lower side and the entire length of the young wood, so that a whole branch may be considered a leafy raceme; white, tinged with rose; each flower half an inch long. The branches are red, and the foliage dark green. It inhabits Western Patagonia. (*Bot. Mag.*, 4827.)

24. *DIPLADENIA ACUMINATA*. Nat. Ord. *Apocynæææ*.—Somewhat resembles the *D. crassinoda* and *D. splendens*. The blossoms are deep rose colour, streaked with red at the throat, four inches across

from point to point of the corolla. Throat yellow, gradually shading off to white; tube three inches long. Flowers produced in a sub-panicle raceme, seven or eight blossoms in each. Introduced from Brazil by Messrs. Veitch and Son. (*Bot. Mag.*, 4828.)

25. *PENTARAPHIA CUBENSIS*. Nat. Ord. *Gesneriaceæ*.—A Gesneriaceous shrub, a native of Cuba, West Indies; discovered by Mr. Linden, flourishing about St. Jago, Pinal de Nimarima, who introduced it to the English nurseries. The flowers are solitary, tubular, curved downwards, about two inches in length, red, with a yellow throat. The foliage resembles that of the *Myrica Gale*. It requires a warm greenhouse. (*Bot. Mag.*, 4829.)

26. *CATASETUM INCURVUM*. Nat. Ord. *Orchideæ*.—Specimens of this orchid was sent to Dr. Lindley last summer by the Lord Bishop of Winchester, who purchased it at one of M. Warzewitz's sales by the name of *C. secundum*. The flowers are very large, being six inches in length from tip to tip of the sepals, and three in breadth; they are of a dull green, stained and streaked with purple. Dr. Lindley observes, "the great blossoms resembled nothing so much as some portentous arachnid seizing upon the shaggy ear of an unhappy animal, and turning it inside out in the struggle to grasp it, till a pair of horns, with which the arachnid seemed furnished, could be plunged into the ear, in order to hold it fast." (*Gard. Chron.*, 108.)

27. *AQUILEGIA CALIFORNICA*. Nat. Ord. *Ranunculaceæ*.—Although this proves to be a mere variety of *A. canadense*, it has a more showy appearance in the border. The flowers are brighter, and have more yellow about them. It, however, resembles the old species in all its general habit. Mr. Hartweg sent it to the Horticultural Society from California. (*Gard. Chron.*, 107.)

28. *CÆLOGYNE PLANTAGINEA*. Nat. Ord. *Orchideæ*.—The Bishop of Winchester purchased this species at a sale at Messrs. Stevens. The flowers, which are produced in long pendulous racemes, are of a greenish yellow, with a white lip, streaked with brown. The pseudobulbs are six inches in length, and bear a pair of leaves about a foot in length. (*Gard. Chron.*, 109.)

NOTES FROM KEW.

BY MR. W. S. PRESTOE.

DRACENA TERMINALIS. Nat. Ord. *Liliaceæ*.—A well-known and very ornamental stove tree, consequently it is a general favourite. The foliage is beautifully striped and shaded with crimson, brown, and green. The flowers, however, are not very attractive, being bluish-white, borne in a small spike.

ACHIMENES PICTA, *var. HILLII*. Nat. Ord. *Gesneriaceæ*.—The foliage of this variety, although variegated, is not so distinct as *A. picta*, but the flowers are brighter orange. The inside of the corolla

is clear yellow, beautifully spotted with scarlet. It is a most abundant bloomer, and merits extensive cultivation.

MANETTIA BICOLOR. Nat. Ord. *Cinchonaceæ*.—A plant well worth cultivation. It is a stove climber, succeeding best against a wire trellis. The leaves are ovate-lanceolate. The flowers are funnel-shaped, bright red and yellow.

IKORA ODORATA. Nat. Ord. *Cinchonaceæ*.—The foliage is remarkably fine, some of the leaves measuring nine inches in length, ovate. Flowers produced in large globular heads, each tubular-shaped blossom three and a half inches in length; the base of the tube pink, shading off to white at the upper extremity; terminal segments yellow. The flowers are very fragrant. Its large trusses have a very showy appearance in the stove. It deserves to be in every collection.

ALOE OBSCURA. Nat. Ord. *Liliaceæ*. Syn. *A. picta*.—The flowers are bright orange-red, produced in spikes. A very interesting succulent, which blooms at a time when flowers are most required. *A. pluridens* and *A. arborescens* are also of a bright orange-red, and are very attractive, particularly at this season of the year. Each of the above are free blooming.

STYPHELIA TUBIFLORA. Nat. Ord. *Epacridaceæ*.—An interesting greenhouse shrub, with beautiful scarlet tubular-shaped flowers, which are now very attractive.

EPACRIS. Nat. Ord. *Epacridaceæ*.—This most beautiful family are now in full bloom in the greenhouse. The undermentioned are what we possess, and are all well worth cultivating. Most of them are free growers, of neat habit, and profuse bloomers. *E. ardentissima*, dark ruby-red, free bloomer; *E. densiflora-incarnata*, bright pink; *E. elegantissima*, rose colour, tipped with white, free flowering; *E. grandiflora*, tube dark lake, pure white mouth, grows freely, and blooms profusely; *E. formosa*, light pink, abundant bloomer; *E. Willmoreana*, bright red, a very free-flowering variety; *E. nivalis grandiflora*, pure white; *E. hyacinthiflora*, large bright pink flowers, grows freely and blooms profusely, the best of the colour; *E. ochroleuca*, white, and rather a shy-flowering variety; *E. impressa alba*, white, free bloomer; *E. miniata*, light red, tipped with white, very free flowering; *E. Tauntoniensis*, fine bright red.

ERICA. Nat. Ord. *Ericaceæ*.—This is also a lovely genus, and most deservedly very popular. The first five have small flowers, but are nevertheless very beautiful. *E. Lambertiana rosea*, the flowers are a pretty rose colour; *E. scabriuscula*, white, very neat and pretty, free bloomer, and robust grower; *E. arbuscula*, flowers pink, borne in profusion; *E. gracilis autumnalis*, bright pink, good habit, very pretty; *E. gracilis vernalis*, similar to the last, but the flowers of a darker shade, and more in erect habit. *E. hyemalis*, tube pink, with a white tip, good habit, and free bloomer; *E. Westcotii*, pink, fine grower; *E. colorans superba*, tube pink, tipped with white, very neat; *E. cruenta*, long curved tube, ruby-red, robust habit; *E. transparentis nova*, flowers bright flesh-colour, very pretty; *E. Petiveriana*

bicolor, bright yellow, the base of the tube red, good habit; *E. mutabilis*, tube bright pink, with a beautiful carmine tip.

JASMINUM NUDIFLORUM. Nat. Ord. *Jasminaceæ*.—This beautiful Chinese shrub, which is nailed against a wall, is now in fine bloom in the open air. The bright yellow flowers have a very showy appearance. It deserves extensive cultivation.

CHIMONANTHUS FRAGRANS. Nat. Ord. *Calycanthaceæ*. Syn: *Calycanthus præcox*.—A beautiful companion to the last-named shrub, filling the air to a considerable distance with the delicious fragrance of its mulberry-coloured flowers. It succeeds well in the same situation as the *Jasminum nudiflorum*.

BEGONIA. Nat. Ord. *Begoniaceæ*.—There are several of these flourishing in the stove here. Amongst the best are—*B. marmorata* leaves heart-shaped, the upper side dark green, marbled with large creamy-white blotches; the under side rosy crimson. The stalks of both leaves and flowers are purplish-crimson. The upper side of the flowers are pale yellow, with fine red veins; on the lower side the veins are much broader and darker. This is one of the best of this extensive genus, and is highly entitled to a place in every stove. *B. frigida*, leaves heart-shaped, biserrate; ground-colour beautiful light green, veined with deep green; the footstalk semi-transparent, pale pink. The flowers are pure white, in trusses, well elevated above the handsome foliage, and form a pretty contrast, rendering it very attractive. It is a free grower, as well as a free bloomer. *B. hæmototricha*, leaves heart-shaped, lanceolate, hairy; flowers small, of a delicate pink. In addition to the above kinds, there are in bloom *B. incarnata*, *B. Prestonensis*, and *B. Ingramii*, all of which are showy and interesting.

JUSTICIA SPECIOSA. Nat. Ord. *Acanthaceæ*.—A neat half-shrubby stove plant, which blooms in profusion, and its bright purple flowers render it very showy.

JASMINUM PUBESCENS. Nat. Ord. *Jasminaceæ*.—A charming stove shrub, which blooms in profusion. The flowers are pure white, highly fragrant, and are produced in trusses. It is an excellent stove ornament.

In the orchid house the following are in fine bloom:—*Cypripedium insigne*; its large, conspicuous blossoms render it very attractive; they are green barred and spotted with brown, and tipped with white. It blooms for several successive months. *Scutellaria stelli*, a beautiful plant, whose curious leaves are about three feet long, and the thickness of a swan's quill. The flowers are yellow, spotted with crimson, and very fragrant. *Cælia macrostachya*, *Phalænopsis amabilis*, *Ansellia Africana*, and *Lycaste plane*, are in beauteous bloom, with some others of less note; all, however, are welcome at this period of the year.

In the stove there are several kinds of Gesnerias in bloom. The following are the most conspicuous:—*G. zebrina*, *G. zebrina compacta*, *G. zebrina splendens* (which is the best of all), *G. ignorata*,

and *G. Pardina*. These are now in fine perfection, and at this period of winter are exceedingly ornamental and valuable.

Soon the very superb collection of Acacias will be in fine display ; a description of all the best, with remarks on treatment, will be forwarded for insertion herein.

At this season they may have an opportunity of knowing much about the small yet powerful enemies that injure many of our cultivated plants, we mean the aphides, or plant-lice. In their destructiveness to growing crops, they are placed by some next to the locusts of warm climates, and farmers and gardeners annually suffer considerable losses by their depredations. Yet we are informed that a knowledge of their history is but very imperfectly diffused among those who suffer most by those minuto enemies. We may have many things to say about them, but the following account of their fecundity and rapid increase may be new to some of your readers.

The double mode of reproduction in the plant-lice, supposed by Dr. Darwin to resemble the buds and seeds of trees, will serve to account for the very astonishing increase of these insects. Dr. Richardson, in the plant-louse of the rose, reckons in one season ten generations, each generation averaging fifty individuals ; so that, by multiplying 50 nine times by itself, one egg will give origin to the almost incredible number of 25,065,093,750,000,000,000. To this must be added the number of eggs laid by the tenth generation before winter, for the renewal of their progeny the following season. M. Réaumur, however, on the observations of M. Bonnet, reckons 90 for the first generation from a single mother ; and reckoning that each of these produces 90 more, the second generation will be 8100, the third will be 729,000, the fourth will be 65,610,000, and the fifth will be 5,904,900,000 ; the ninth generation in this case would be 350,970,489,000,000,000. That this calculation is founded on the best ascertained facts, appears from the experiments of M. Bonnet, to which we have above referred ; and he has been so particular as to record the day and hour of the birth of each individual insect.

In one of his journals we find 95 plant-lice produced from one mother between the 1st and the 21st of June; in another, 90 plant-lice from the 30th of May to the 15th of June. M. Latreille, a high authority, states the increase at 25 young a day from the same mother; though, on looking over M. Bonnet's tables, we find the numbers never exceed ten, and are usually from four to six young a day; so that, supposing the facts relate to the same species, there must be some mistake in M. Latreille's statement.

Even, however, at the lowest estimate, the rate of increase is almost inconceivable, and hence, we need not wonder that these insects sometimes appear in such numbers as to obscure the air.

"On the 1st of August," says White of Selborne, "about half an hour after three in the afternoon, the people of Selborne were surprised by a shower of *Aphides*, which fell in these parts. They who were walking the streets at that time found themselves covered with these insects, which settled also on the trees and gardens, and blackened all the vegetables where they alighted. These armies, no doubt, were then in a state of emigration, and shifting their quarters, and might, perhaps, come from the great hop plantations of Kent and Sussex, the wind being that day at north. They were observed at the same time at Farnham, and all along the vale at Alton.

To a gardener this must appear frightful. It, however, teaches one useful lesson; at the sight of *one insect* in a house or frame of plants, strongly fumigate with tobacco, or dip the plant overhead in a strong solution of tobacco-water. The genuine liquid may be bought at the tobacco manufacturers, at but a few pence per gallon.

THE HYDRANGEA.

ALTHOUGH this must be admitted to be one of the most showy plants we have, it has certainly been very much neglected of late years. It is, however, still prized by a few, who find it particularly useful for greenhouse and conservatory decoration, displaying its enormous heads of pink and blue flowers in abundance, and remaining a long time in perfection. The following method of treatment being pursued will enable all who practise it to have *large heads* of blossom from plants even in small pots. If cuttings are taken off in August, and potted in a mixture of leaf-mould, loam, and sand, in a well-drained pot, and be placed in an old cucumber or melon frame, they will root freely, and should be potted into four-inch pots as soon as they have become sufficiently rooted. The plants should be kept to one leader, the top bud of which should not be pinched out, but all lateral or side shoots should be removed as soon as they appear. When sufficiently established in their pots, move them to the greenhouse, where they should be wintered. Early in spring shift them into five or six-inch pots, as may best suit your convenience, and as soon as they have commenced growth liberally supply them

with water, using the syringe freely at all times. Perhaps the most convenient place for them at this season is a vinery, which I find suits them well, and brings them on gently until the blossoms make their appearance. Water at this stage must on no account be neglected. If large specimen plants are required, they should be grown another season, when they will form a fine bush and produce many heads of blossoms, although inferior in size to those on plants kept to one leader. I have grown the same plants for years; in this way they have made huge specimens, and amply repaid me for my trouble; but if small plants with large heads are preferred, they should be grown from cuttings every season. I have also struck cuttings in February, and grown them on until the following season, using a slight bottom-heat, and disbudding the useless eyes; such plants have produced enormous heads, superior in size to those struck in August, but then the plants are longer in hand, which, in many cases, is a consideration. The soil best suited for their culture is equal portions of cow-dung, leaf-mould, fibrous loam, peat, and sand, well mixed in a rough state. The pots should be thoroughly drained, and, during the blooming season, the plants will be benefited by being placed in a pan of water. Manure-water may be used freely while the plants are in bloom. In order to change them from pink to blues of different shades, pot them in Norwood loam, or common red sand; potting in peat and watering with alum-water will also produce the same effect; but the two former kinds of material are the best. If planted on well-drained ground, and slightly protected in winter, the *Hydrangea* will form an ornament in the flower-garden such as few can equal; but it must be liberally supplied with water during the blooming season.

MONSTROSITY OF A ROSE.

WITH few exceptions, the flowers on a standard Rose growing on a lawn failed this summer to exhibit good blooms, and presented various degrees and forms of monstrosity. This occurrence may be attributed to the wet season stimulating the tree to the production of wood instead of flowers. It should, however, be noted, that neighbouring Rose trees, growing under precisely the same circumstances, but of different species, produced their proper flowers; with, however, a prevailing tendency to abortive petal growth, and the production of the condition known as the "green eye." In the tree in question the most remarkable example was that of a flower which was repeated three times on the same axis, each time exhibiting sepals, petals (coloured and scented), perfect stamens with pollen, and imperfect semi-leafy carpels. The stem expanded into its usual rounded receptacle, fringed by the free portion of the calyx, of its general character, and supporting on its discoid margin the petals, and within these numerous stamens. Some of the innermost petals were not

well coloured, nor well developed, but small and greenish. From the sides of the cup-like receptacle sprang several hairy styles crowned by their stigmas, of much the usual form, but still not well formed; and along with these imperfect carpels of a green colour, and having the form of narrow leaves folded longitudinally on themselves, and many of them terminating in a fringed process or awn. Neither the normal styles nor the leafy carpels had ovules. The centre of the cup exhibited a larger carpellary leaf, so folded as to enclose one or more similar though more delicate leaves and a growing point, representing a continuation of the stem. This point, gradually elongated, developed towards one side two lanceolate decurrent leaves or bracts, which, like itself, assumed a reddish colour. Having acquired about an inch in length, it shot out five ovate-lanceolate acuminate sepals, confluent at their base, and decurrent, not on the same plane but spirally arranged, and also tinged red. Thus, a second flower grew in all respects like the first, except that it had a very indistinct receptacle. During the development of the second, the first flower withered, its petals falling away. The axis of the second inflorescence, endued with the like powers of growth, extended itself, produced a sheathing bract, then swelled into a half-globular receptacle, with five sepals as in the last, but here set in a regular whorl on the same plane, and having two bracts, like themselves, immediately external to them. The petals of this third flower were numerous, small indeed, but sweet-scented; the stamens numerous, containing pollen; whilst a few very rudimentary, slender, carpellary leaves and styles surrounded a larger involuted one, containing a growing point along with two or three pistils terminated by stigmas. In this terminal inflorescence (examined whilst actually flowering) the carpellary leaves were smallest, and the leaf-like character most lost; whilst many styles, hairy and delicate, occupied the concavity of the receptacle, and apparently had perfect carpels at their base.

The production of these three flowers in sequence occupied two months. On a longitudinal section the growing point in each flower was seen not to have proceeded from the exact centre or actual axis of the receptacle, but rather from one side. Hence, both the irregular peduncles curved so as to maintain the flower in the same line with the original stem.

In another monstrosity, in which two flowers were produced on the same continuous axis, the sepals exhibited a tendency to be compound, by developing imperfect leaflets. In a third example the sepals had grown into large compound leaves, having two leaflets on each side the petiole, and a very large terminal one. In this case, too, where but one flower formed, the growing point started at nearly a right angle to the original peduncle, and then, curving to bring itself into the same straight line, grew into a strong shoot, forming at its apex a good bud (flower) for the winter. A similar growth of the calyx into actual leaves occurred in another case.

The last irregularity to which I shall refer is, where the axis of a

These instances of monstrosity well illustrate the morphology of carpels—their origin from leaves, and their tendency to take on the form, and along with this the spiral arrangement of the latter. The perfect pinnate leaves of a shoot proceeding from the centre of a Rose we must suppose to be morphologically the same with the small folded carpellary leaf; the last instance cited shows the grades of development between the two. The production of the shoot causes the abortion of the flower and its ovules; hence the size and vigour of the shoot afford a measure of the vital vegetative force expended in the formation of a flower, and mainly of its ovules. I am inclined to believe with Schleiden, that the ovule is a product of the axis and not of the carpellary leaves; that indeed it is a bud growing from the axis in the axil of a leaf—*i. e.*, the carpel.—*Arlidge, in Annals of Natural History.*

THE BIG TREE (WELLINGTONIA GIGANTEA).

DR. C. F. WINSLOW, in the *California Farmer*, a weekly journal published at San Francisco, has given an account of his excursion from "Murphy's Camp" (2400 feet elevation) to the site of the "Big Tree," on the very stump of which he writes his letter (Aug. 8, 1854), the spot itself being designated, at least by him, "Washington Mammoth Grove." If this account is to be depended upon (and it must be confessed the learned Doctor's style is both flowery and hyperbolic), we learn some new and interesting particulars respecting this gigantic tree:—1st, That the accounts brought home by our sober English traveller, Mr. William Lobb, do not give us the full height to which this Pine attains, by one-fourth; 2nd, that the locality seems to be circumscribed to an area of a few acres; and, 3rd, what concerns us more, now that Messrs. Veitch and Son have enabled us to possess living plants, that the soil and atmosphere at the place of growth are singularly humid; and in this we think the Doctor is likely to be correct. Omitting, then, the mention of "the sublime thoughts, such as have

rarely before impressed his soul,"—"of such a nature that he often involuntarily surrendered himself to the idea that he was approaching the visible and actual presence of the Great One who revealed himself to Moses on the heights of Sinai," etc.—we shall confine ourselves to the following extracts:—"The road (from Murphy's Camp) gradually ascending for several miles over a varied landscape, becomes afterwards more level, or rather it undulates and winds for a long stretch among hills and valleys thickly wooded, and fit for farms and deer parks. During the last three miles the ascent is steady and through a virgin wilderness of Pines, Firs, Spruce. Arbor-Vitæ, and other cone-bearing trees, whose magnitude perceptibly increases with the altitude of the locality. The whole surface of the hill-sides is covered with herbage or plants, more or less verdant, and in spots there is a freshness to the verdure which reminds one of spring, and which contrasts strongly with the arid and dusty plains and hills of the lower sections of country. The wild raspberry, strawberry, pea, and hazelnut mingle their humble or more prominent foliage with the diversified undergrowths of the forest; and here and there new and attractive flowers struck my eye so pleasingly, that I was compelled at times to stop, gather, examine, and admire them. The charm of these regions to the botanist would be in the freshness and luxuriance with which Nature elaborates her vegetable forms. The vital principle, stimulated by the condensing vapours of the cool fresh air of night, and nourished by a suitable pabulum in the decomposing soil, acts with a steady energy, and thousands of stately trees stud the hills in all directions, so lofty as to amaze the observer, and to compel him when near them to strain his eyes to catch a view of their topmost offshoots. But the most amazing of all these vegetable productions are here; and Nature, by peculiar geognostic arrangements, seems to have isolated them to startle and arrest the attention of mankind, and to strengthen scientific truth, touching the special distribution of organic races.

"So far as known, the vegetable growth to which the name of 'Big Tree' has been attached grows in no other region of the Sierra Nevada, nor on any other mountain-range of the earth. It exists here only, and all the individuals of its kind, so far as I can learn, are localized to this vicinity. They are embraced within a range of 200 acres, and are enclosed in a basin of coarse siliceous material, surrounded by a sloping ridge of sienitic rock, which in some places projects above the soil. The basin is reeking with moisture, and in the lowest places the water is standing, and some of the largest trees dip their roots into the pools or water-runs. The trees of very large dimensions number considerably more than one hundred. Mr. Blake measured one 94 feet in circumference at the root; the side of which had been partly burnt by contact with another tree, the head of which had fallen against it. The latter can be measured 450 feet from its head to its root! A large portion of this fallen monster is still to be seen and examined; and by the measurement of Mr. Lapham, the proprietor of the place, it is said be ten feet in diameter at 350

feet from the upturn root! In falling it had prostrated another large tree in its course, and pressed out the earth beneath itself, so as to be imbedded a number of feet into the ground. Its diameter across its root is 40 feet. A man is nothing in comparison of dimensions, while walking on it or standing near its side.

"This to me was the greatest wonder of the forest. The tree which it prostrated in falling has been burnt hollow, and is so large, a gentleman who accompanied us from Murphy's informed us, that when he first visited the place, two years ago, he rode through it on horseback for 200 feet without stopping but at one spot, as he entered at the root. We all walked many scores of feet through it, but a large piece of its side has fallen in near the head. But there are many standing whose magnitude absolutely oppresses the mind with awe. In one place three of these gigantic objects grow side by side, as if planted with special reference to their present appearance. Another, so monstrous as to absolutely compel you to walk around it, and even linger, is divided at from 50 to 100 feet from the ground into three of these straight mammoth trunks, towering over 300 feet into the sky.

"There are others, whose proportions are as delicate, symmetrical, clean, and straight as small Spruces, that rise 350 feet from the ground. In one spot a huge knot of some ancient prostrate giant is visible above the soil, where it fell ages ago, and the earth has accumulated so as nearly to obliterate all traces of its former existence. The wood of this tree, I am told by Mr. Lapham, is remarkable for its slow decay. When first cut down its fibre is white, but it soon becomes reddish, and long exposure makes it as dark as mahogany; it is soft, and resembles in some respects pine and cedar. Its bark, however, is much unlike these trees; nearest the ground it is prodigiously thick, fibrous, and when pressed on has a peculiar feeling of elasticity. In some places it is eighteen inches thick, and resembles a mass of cocoa-nut husks, thickly matted and pressed together, only the fibrous material is exceedingly fine, and altogether unlike the husk of the cocoa-nut. This bark is fissured irregularly with numerous indentations, which give it the appearance of great inequality and roughness. At 150 feet from the ground it is only about two inches thick on the living tree, which is now being stripped of its bark for transportation from the country.

"An hotel is built near the 'Big Tree,' whose bark was stripped last year and exhibited in San Francisco; and an appendage of the house is built over it, so as to constitute a hall for cotillion parties. At the root it measures 96 feet in circumference, and a portion of its prostrate trunk is used for a bowling alley. To overthrow it, holes were bored through with a large auger, and after the trunk was mostly separated, attempts were made to wedge and upset it; but its immense size and weight prevented the success of this undertaking, and on the fourth day it fell by the force of a strong wind. In falling it convulsed the earth, and by its weight forced the soil from beneath it, so that it lies in a great trench, and mud and stones were

driven near a hundred feet high, where they have left their marks on neighbouring trees."

The following paragraph bears very hard upon Dr. Lindley:—"The name that has been applied to this tree by Professor Lindley, an English botanist, is *Wellingtonia gigantea*. By him it is declared to be so much unlike other Coniferæ, as not only to be a new species, but to require description as a new genus. Other botanists of eminence think differently. To this, however, he has seen fit to apply the name of an English hero, a step indicating as much personal arrogance or weakness as scientific indelicacy; for it must have been a prominent idea in the mind of that person that American naturalists would regard with surprise and reluctance the application of a British name, however meritoriously honoured, when a name so worthy of immortal honour and renown as that of Washington would strike the mind of the world as far more suitable to the most gigantic and remarkable vegetable wonder indigenous to a country where his name is the most distinguished ornament. As he and his generation declared themselves independent of all English rule and political dictation, so American naturalists must in this case express their respectful dissent from all British scientific 'stamp acts.' If the 'Big Tree' be a *Taxodium*, let it be called now and for ever *Taxodium Washingtonium*. If it should be properly ranked as a new genus, then let it be called to the end of time *Washingtonia Californica*. The generic name indicates unparalleled greatness and grandeur; its specific name, the only locality in the world where it is found. No names can be more appropriate; and if it be in accordance with the views of American botanists, I trust the scientific honour of our country may be vindicated from foreign indelicacy by boldly discarding the name now applied to it, and by affixing to it that of the immortal man whose memory we all love and honour, and teach our children to adore. Under any and all circumstances, however, whether of perpetuity or extinction, the name of *Wellington* should be discarded, and that of *Washington* attached to it, and transmitted to the schools of future ages."—*Hooker's Journal of Botany*.

MISCELLANEOUS.

THE COMMON ST. JOHN'S WORT, (*Hypericum perforatum*) has a powerful lemon-like scent when rubbed, staining the fingers with dark purple, from the great abundance of coloured essential oil lodged in the herbage and even in the petals. As this plant was found to bleed at the slightest touch, it was supposed to have a healing quality, and that it became the "balm of the warrior's wound," giving a blood-red colour to every composition, whether of a spirituous or oily nature, into which it entered. The common people in France and Germany gather this species with great ceremony on St. John's Day, and hang it in their windows as a charm

against storms, thunder, and evil spirits, mistaking the meaning of some medical writers, who have fancifully given this plant the name of *Fuga Dæmonum*, from a supposition that it was good in maniacal and hypochondriacal disorders. Formerly it was always carried about by the people of Scotland as a charm against witchcraft and enchantment.—*James Collier*.

ON PRUNING FOREST AND ORNAMENTAL TREES.—Particular regard should be paid to their health and vigour, and not to their size and age. A vigorous tree, full of sap, and twenty years of age, may be pruned with more safety than a stunted one fifteen years old, because the parts cut over would heal sooner in the former one, from its being full of sap, than in the latter, which was deficient in sap; indeed, the whole art of pruning consists in thinning out the branches according to the size, health, and vigour of the tree; to have the tree as well poised with branches as circumstances will allow, and leaving those branches on the tree which will assist the general circulation of the sap.—*Fbrester*.

TO HEAL THE WOUNDS OF TREES.—When the tree is cut, or otherwise wounded, smooth the place with a sharp knife, and if cankered scrape or cut it all out; then put $\frac{1}{2}$ lb. of tallow into 2 lb. of tar, warm it over the fire till the tallow is melted, then add 1 oz. of saltpetre, stir it together, and lay it on the parts you want to heal.

BRIEF REMARKS, &c.

STERCULIA GUTTATA.—The bark of this tree the Malabars convert into a flaxy substance, of which the natives of the lower coasts of Wynaad continue to make a sort of clothing. The tree is felled, the branches lopped off, and the trunk cut into pieces of six feet long, a perpendicular incision being made in each piece; the bark is opened and taken off whole, chopped, washed, and dried in the sun. By these means, and without any further process, it becomes fit for the purposes of clothing.—*Hooker, Jour. Bot.*

ROTTEN TAN.—As a constant subscriber to the Floricultural Cabinet, permit me to ask, through the medium of your widely circulated magazine, for some information from the readers thereof as to the use of *rotten tan*, whether it has properties as a *manure*, besides being useful to lighten heavy soil, and what plants flourish in it, when mixed with other compost?—*W. H. Spencer*.

CAUSE OF DEW.—The discovery of Dufay remained a barren fact until the attention of Dr. Wells was directed to the subject. He argued that, as a clear and cloudless sky radiates little or no heat towards the surface of the earth, all objects placed on the surface, which are good radiators, must necessarily fall in temperature during the night, if they be in a situation in which they are not exposed to the radiation of other objects in their neighbourhood. Grass, and other products of vegetation, are in general good radiators of heat. The vegetation which covers the ground in an open champaign country on a clear night will therefore undergo a depression of temperature, because it will absorb less heat than it radiates. The vegetables which thus acquire a lower temperature than the atmosphere, reduce the air immediately contiguous to them to a temperature below saturation, and a proportionately copious condensation of vapour takes place, and a deposition of dew is formed on the leaves and flowers of all vegetables. In fact every object, in proportion as it is a good radiator, receives a deposition of moisture. On the other hand, objects which are bad radiators are observed to be free from dew.

Blades of grass sustain large pellucid dew-drops, while the naked soil in their neighbourhood is free from them.

GARDENS OF THE SOUTH SEA ISLANDS.—“A garden is a valuable acquisition in this part of the world; and, next to our dwellings, we regard it as an important part of our domestic establishment. As soon as the sites of our houses were fixed, we employed natives to enclose a piece of ground adjoining them. I had received from Governor Macquarie, in New South Wales, a hundred ears of Egyptian wheat, which being a kind frequently grown in a warm climate, it was supposed might flourish in these islands. The grain was planted with care, and grew remarkably well; the leaves were green, and grew high and strong, and the ears large; but as they began to turn yellow, it appeared that scarcely one of them contained a single grain of corn, and the few that were found were shrivelled and dry. Potatoes were also tried, and have been repeatedly planted since, in different situations and seasons; but although, after the first growth, they usually appear like young potatoes, if planted again, they are invariably soft and sweet, very small, and by no means so palatable as the indigenous sweet potato.

“At Asaraita, I had sown a number of seeds from England, Rio Janeiro, and New South Wales. Coffee and Cashew-nuts (*Anacardium occidentale*) I had before planted in boxes; they grew well, but the Coffee and Cashew-nuts were totally destroyed by the goats, which, leaping the fence one day, in a few minutes ate up the plants, on which I had bestowed much care. I succeeded, however, in preserving the Custard-apple (*Annona triloba*, or *squamosa*) that I had brought from Rio, and plants from it are now bearing fruit in several of the islands. In addition to these, I was enabled to cultivate Papaw-apple (*Carica papaya*), French-beans, carrots, turnips, cabbage, and Indian-corn; while our little flower-garden in Huahine was adorned with the *Convolvulus major* and *minor*, *Capsicum*, *Helianthus* and *Amaranthus*, with several brilliant native flowers, amongst which the *Gardenia* and *Hibiscus rosa sinensis* were always conspicuous. The front of our house was shaded by orange trees, and our garden enclosed with a citron hedge.

“The natives display a taste for the beautiful, in their fondness of flowers. The *Gardenia*, *Hibiscus*, and *Amaranthus* were often wove in the most graceful wreaths and garlands, and worn on their brows. They were delighted when the Sunflower (*Helianthus*) was added to their flowers. The king and queen passed by my garden, when the first ever grown in the islands was in flower, and came in to admire its size and brilliant colours. Soon after their return, I received a note from the king, asking a flower for the queen, and also one for her sister. I sent them each a small one; and the next time they appeared in public, the large Sun-flowers were fixed as ornaments in their hair.”—*J. Stainer*.

FLORAL OPERATIONS FOR FEBRUARY.

PARTICULAR attention is now necessary to provide an ample supply of *robust bushy plants* for the summer's floral display of the *Flower Garden* and *Lawn*. If deferred later, the plants will be in proportion weaker, therefore be determined to have a good stock by the end of April. To accomplish this, sow seeds, put in cuttings, divide suitable perennials, pot off singly the autumn-struck plants, etc. Do not *delay* these required operations, but *immediately* attend to them. Now too is the time to make a plan of the flower-garden, etc., and mark each bed with the name of the plants required, which will be a guide for stock required.

FLOWER GARDEN.—Plant *Roses*, and prune the *hardy class*, cutting back to two or at most three buds, not only the young shoots of last year, but the naked wood of previous years. Rich manure must be laid over the roots of all *Roses*, removing a few inches of the soil, and filling up the hollow with it, then sprinkle over a little earth to prevent it drying. *Hollyhocks*, *Perennial* and *Biennial* herbaceous plants should be planted immediately, or they will not be sufficiently

established to bloom well, if deferred much longer. *Annals*, sow some of the harder kinds towards end of the month, covering rather deeper than later on. *Pink* and *Pansy* beds should be stirred over, pressing the soil firmly to the plants, and see they are protected as directed last month. Stir the surface of all flower-beds, and add fresh loam, rotten manure or leaf-mould, if not previously done. *Bulbs*, protect the beds from frost, and where any plants appear, screen from strong winds, also beds of autumn-planted *Ranunculus* and *Anemones*. *Auriculas* and *Polyanthus*, take off suckers, top dress, keep from frost, but give air freely at other times, and let them have manure-water twice a week; also sow seeds in pans, if omitted last summer. *Ranunculus* bed make directly; it will duly settle by the 15th, when they must be planted, if the weather permit. The tubers must be five inches apart, and be covered $1\frac{1}{2}$ inch; also, if the soil be rather dry, press the surface a little firm after planting. *Pinks*, *Pansies*, *Carnations*, and *Picotees* in pots, must have a free admission of dry air, and in wet weather tilt the lights on both sides. Repot the show *Pansies* into those they are to bloom in, give a liberal drainage, and a rich loamy soil; let them have manure-water twice a week. Sow *Mignonette* for boxes in small pots, and turn out into them in April with entire balls. *Tuberose* plant in pots, or border, in a warm situation. *Shrubs* for forcing next winter must now be potted, such as *Persian Lilacs*, *Azaleas*, *Kalmias*, etc. *Verbenas* that are beginning to be spotted by mildew, dust them over and under with sulphur; place some plants in heat to push cuttings for striking, and if green-fly attack, fumigate freely with tobacco. Protect the early buds of *Tree Pæonies* from injury by frost, also *Chrysanthemums* in pots.

GREENHOUSE.—*Cinerarias*, repot; if the green-fly attack, fumigate immediately. Place them near the glass; a pit-frame (dry, is best). *Calceolarias*, repot, to have them large. *Camellias*, inarch or graft; before the new shoots begin to push, place in a hot-bed frame. Do not allow the blooming plants to lack water, or flower-buds will drop; let them have manure-water alternately. Put in cuttings of the single-flowered to graft upon. *Pelargoniums* to bloom in May, now repot into blooming-pots, and repot the smaller plants; also give plenty of air. *Epacris*, *Correaeas*, *Acacias*, *Coronillas*, etc., will now be gay; water seldom, but give as much as will moisten the entire ball at each time. *Ericas* attacked with mildew, sprinkle sulphur over and under. *Alstromerias*, repot. Air admit freely, when dry and mild. *Azaleas*, place in warmest part. *Chinese Primroses*, give manure-water; it improves the colours of flowers. *Fuchsias*, prune in freely, and start the best sorts in a hot-bed; train, put in cuttings, and as soon as shoots have pushed a little, repot the plants. *Begonias*, some are fine for bloom now. Show *Pelargoniums* must be put into their blooming-pots, with balls entire. *Scarlet Pelargoniums*, see to the large plants, pot if required for extra specimens, etc.; gently bring them on. *Insects* will now be moving, fumigate sulphur, etc., and attend to it at once. Pot the *Lilium lancifolium* for early bloom, also greenhouse *Amaryllises*, *Ixias*, *Oxalis*, etc. Occasionally stir up the surface of the soil in pots, it promotes the health of the plants.

FORCING STOVE, FRAME, ETC.—*Achimenes*, *Amaryllis*, *Gloxinias*, *Gesnerias*, etc., now start another lot, and pot off singly any which have pushed of those started last month. Sow seeds of *Balsams*, *Cockscomb*, *Amaranthus*, *Salpiglossis*, *Brachycome*, *Asters*, *Stocks*, *Double Indian Pinks*, *Leptosiphon Calceolaria*, *Linum grandiflorum rubrum*, *Chinese Primrose*, etc. *Calceolarias* and *Cinerarias* succeed best in a warm moist temperature, in a pit frame kept about 56° giving air freely, and fumigate often. *Hyacinths* must be near the glass; change the water in glasses every fourth day. Put in cuttings of *Fuchsias*, *Alonsoas*, *Double Rugwort*, *Shrubby Calceolarias*, *Cupheas*, *Salvias*, *Heliotropes*, *Geraniums*, *Verbenas*, *Boucardias*, *Linum trigynum*, *Petunias*, *Antirrhinums*, *Anagallis*, etc., for beds. *Cinerarias*, introduce a few to bloom early. *Ixoras*, and similar stove or greenhouse plants intended for exhibitions, should be repotted, pruned, and trained; for the stove section a hot but moist temperature is best. *Roses* frequently syringe, and fumigate occasionally, to keep down green-fly.



Gesneria Donckelaarii.

The Floricultural Cabinet.

MARCH, 1855.

ILLUSTRATIONS.

GESNERIA DONCKELAARII.

AMONGST the existing beauties of Flora, the plants belonging to the Nat. Ord. *Gesneriaceæ* rank with the most lovely of our exotic ornaments, especially so are those of the genera *Achimenes* and *Gesnerias*, which by a proper course of treatment can be had in fine bloom every day in the year. Their value, too, is enhanced by succeeding so admirably during the dull months of autumn and winter, when the gay appearance of the richly coloured flowers are strikingly elegant and attractive, eminently calculated to adorn the stove, warm conservatory, and drawing-room.

The charming *Gesneria* which we now figure is an hybrid, which was produced in the Botanic Garden at Ghent. M. Donckelaar, jun., the chief director of that establishment, states that a blossom of *Gesneria discolor* had been impregnated by pollen from one of *Ligeria* (*Gloxinia*) *rubra*, and the result was the production of this highly beautiful flowering plant.

Our illustration was taken from a plant furnished to our artist by M. Donckelaar, who states that it is the most faithful portrait yet published. We regret, however, that M. Donckelaar had not at that time a plant more fully in flower, for our readers will perceive in our figure that there were nearly thirty blossom-buds which were unexpanded. We have seen several plants of it in bloom, and not one had less than from twelve to twenty fully expanded flowers, and the fine paniced spike, elevated above the two noble heart-shaped leaves, had a strikingly beautiful appearance.

As previously observed, it may be had in bloom all the year, by starting plants into growth at suitable successive periods, and after blooming gradually, to withhold water till the soil is all but dry, in which barely moist state the tubers must be kept undisturbed in the pot during the necessary time of rest, and be placed where they will be preserved from damp and frost.

It flourishes with similar treatment to other *Gesnerias* and *Achi-*

menes, grown either one plant in a pot, or three or four in a pan, as stated by Mr Prestoe in our last month's Magazine.

We saw it in great vigour, grown in a compost of equal parts of light turfy loam, good fibrous peat, and old dry cow-dung, with a sprinkling of silver sand, and a liberal drainage; this compost was not sifted, but well broken by the hand. It is readily increased by its underground tubers, and very easy to cultivate.

The plants can be brought to a blooming condition in a hot-bed frame or warm pit, and when beginning to unfold their flowers, may be taken to the conservatory or greenhouse during the period from April to October, but afterwards must be in a warmer temperature, either in the stove or other suitable room. It merits a place in every collection of this class of plants.

TREATMENT OF ACHIMENES PICTA.

BY MR. W. S. PRESTOE, ROYAL GARDENS, KEW.

AMONGST the various species of this interesting genus of plants, the *A. picta* is one of the most ornamental, both for summer and winter decorations, its beautiful variegated foliage and bright orange-coloured flowers rendering it a great favourite. Although it is so well known, perhaps a few hints on a very successful method of growing it will be useful to some of your readers.

It is a plant which can be propagated either from its leaves or from the small, brown-coloured, scaly tubers, which are generally very plentiful upon the stolons, or from the scaly tubers under ground; the last are most preferable, as they produce stronger plants, which do not require so much trouble as by the other methods. Tubers should be started into growth at four different periods of the year, viz., the beginning of February, the middle of March, the beginning of May, and the middle of June. By starting them at the above specified times, there will be a succession of flowers from the beginning of July to the end of the year. The soil most suitable for them is one-third leaf-mould, one-third well-rotted dung, and one-third peat and sand, with a little fine charcoal mixed therewith. Pans should be prepared for them, by first cleaning them, then placing about one inch of drainage at the bottom of each, covering the drainage with a little moss to keep the soil from washing down amongst it, and the pan should then be filled with the above compost to about an inch from the top; the tubers should be then shaken carefully from their resting pot, and be placed rather thickly all over the soil in the pan, there should be just enough soil to cover them; they should then receive a good watering, and be placed in a bottom heat, not too hot, in a cucumber frame, if there be no other suitable convenience at hand. Great care must be taken in not allowing them to suffer from want of water, neither should they have so much as to keep them soddened. When they have grown about an inch above

the soil, they must be carefully removed from the pans, by thrusting a stick down below each and so lifting them up. Pans must be prepared for them as above directed; the most suitable-sized pans for their present reception are those which are eight inches across and four inches deep. In arranging the plants, place from four to eight bulbs in each pan, after which they must have a gentle sprinkling of warm water and be again placed in bottom heat. In fine weather, occasionally sprinkle them over head with clear warm water. They must be protected from the direct rays of the sun, or the foliage will be of a brown colour, instead of the beautiful netted green and white. When they have grown about six inches high, the outside plants (those next the rim of the pan) must have their tops taken off with a sharp knife, leaving the centre one to grow without stopping; this will prevent them being drawn up weakly, as is often the case when all are allowed to grow unstoppered; but by permitting the centre one only, the outer ones push lateral branches, and the whole form a handsome pyramidal-shaped bush, displaying the flowers to full view over the whole. Careful attention must be given to supply them with a due sufficiency of water at the roots; and, on the other hand, do not allow steam, which in a hot-bed frame arises from fermenting materials, to injure the leaves, for, if not guarded against, it will make the leaves appear very unsightly, as well as cause the flower-buds to fall off.

When the plants begin to expand their flowers, they must be removed to a drier atmosphere, in the stove, warm conservatory, or greenhouse, there to display their increasing beauty and splendour; when they have ceased to flower they must be taken to a cooler house, and there allowed to dry gradually. When the tubers are fully ripe, they only require to be put in a dry place, protected from frost and damp, till required for next season's cultivation.*

REMARKS ON THE BRUGMANSIA FLAVA.

BY A PRACTICAL GARDENER.

THIS fine blooming plant is so well worth the attention of all who possess a greenhouse, that I think it cannot be too strongly recommended, and when treated in the manner I am about to explain will, I am sure, make its already sensible attractions doubly interesting. In the border of a conservatory I had a plant of *Brugmansia arborea*, which, in the course of the summer of 1853, attained the height of six feet of clear stem; after having bloomed and cast its leaves it was taken up, repotted, and placed in a cool and dry vinery for the winter. In the spring of 1838, about the middle of March, it was turned out of the pot, the old soil cleared from the roots, and repotted in good turfy loam and dung. It was now taken to the pine stove, where a

* In last month's number there was a mistake at page 28, line 38; instead of *ninety* degrees during the night, it should be *sixty*.

good heat was maintained, in which it soon made fresh growth from the top of the plant, emitting several shoots near each other, two only of which were retained. While this was going on, I obtained from a neighbour a small plant of *Brugmansia flava*, which had been excited about the same time as the plant above alluded to. As soon as the stronger shoot of *B. arborea* had grown about six inches, the small plant of *B. flava* was inarched upon it, and it very soon united, as became apparent from its increased vigour of growth. When all was considered safe, the inarched plant was detached, the bandages removed, the other shoot was also displaced, and *B. aurea*, having the full supply of sap from a vigorous and more robust-growing plant, soon made a fine head, and in the autumn, when in bloom, exhibited far more conspicuously, from its elevated position, its large and beautiful golden trumpet-like flowers. I have practised the same process, too, with a stock of *B. arborea*, being only six inches high, and the increased vigour of the *B. flava* both in growth and bloom was equally admirable.

Last winter, I procured a plant of the new *yellow double-flowered Brugmansia*, and this has bloomed freely, forming a rather bushy plant two feet high. I inarched a branch of it to the *B. arborea*, and the flowers are nearly double the size of those on the natural plant.

DIOSCOREA BATATAS,

AS A SUBSTITUTE FOR THE POTATO.

THERE have been many attempts of late years to find a substitute for the potato, in consequence of the disease which has so extensively devastated the crops, and much has been written and said upon the subject.

Although scarcely within the province of the FLORICULTURAL CABINET, we cannot omit to bring under the notice of our readers a few particulars of the above plant, which is now exciting considerable interest, and is likely to become a staple article of food.

It has been improperly confounded by some with *D. japonica*. It was introduced to Europe, about four years ago, by M. de Montigny, the French consul at Shang-Hai, from China. In the last two editions of the "Bon Jardinier," M. Louis Vilmorin has communicated the results of his experience in the cultivation of this plant.

Dioscorea Batatas, or the Chinese Yam, is cultivated through a great portion of the Chinese empire under the name of Tchow-ya. It has been proved by M. Decaisne to be perfectly hardy around Paris, and there is no doubt that it will be found so in our own country.

The rhizomes, or roots, are perennial, very large and long, attaining near two feet, and weighing from one to two pounds each; they are *club-shaped*, the bottom or thick end is as large as a man's fist, tapering upwards to the small end, which is as thick as the finger. The

skin is a pale brown, and covered with many fibrous rootlets. The flesh is as white as snow, and free from visible fibres and woody matter; the flavour is pleasant, being a root which contains a large amount of farina, with a greater quantity of starch and less water than the potato, which consequently renders it more nutritive. When cooked, either by roasting or steaming, they have the appearance and taste like the potato; but when boiled they are so soft that, as M. Decaisne says, a slight pressure converts them into a paste resembling that made from the finest wheaten flour. They are cooked in half the time required for potatoes.

Independent of the above excellent qualities, there is every probability of its taking a still more important position in the economy of the country, for when dried and reduced to powder it is equal to arrow-root, or mixed in the proportion of one-third with two-thirds of wheaten flour, it makes an extremely light and wholesome bread, as well as superior pastry.

The stems, which are about the thickness of a small cane, from six to seven feet long, and lie prostrate, are annual, and die down yearly; they are purple spotted with white. The leaves are heart-shaped, produced opposite, in pairs.

The method of cultivation is as follows: plant the sets, which are cut from two or three inches of the *upper portion* of the root (the remainder being serviceable for cooking), on the tops of ridges, which should be about a foot high, and not more apart, *early in April* being the best time. When planted in this manner, it will only be necessary to dig one spade deep in taking them up, and the ground is levelled at the same time. The plants should not be staked, because when allowed to trail over the ground they tend to preserve the moisture from evaporation. If allowed to grow too vigorously, the roots will be smaller than when the plants are kept pruned and shortened. The Chinese increase it by layering. It may be abundantly propagated by this means, as well as by cuttings. In China it is exclusively grown in sandy soils, where other crops will not flourish.

The roots will keep well for a year and upwards, and are not liable to *shoot*, as the potato does.

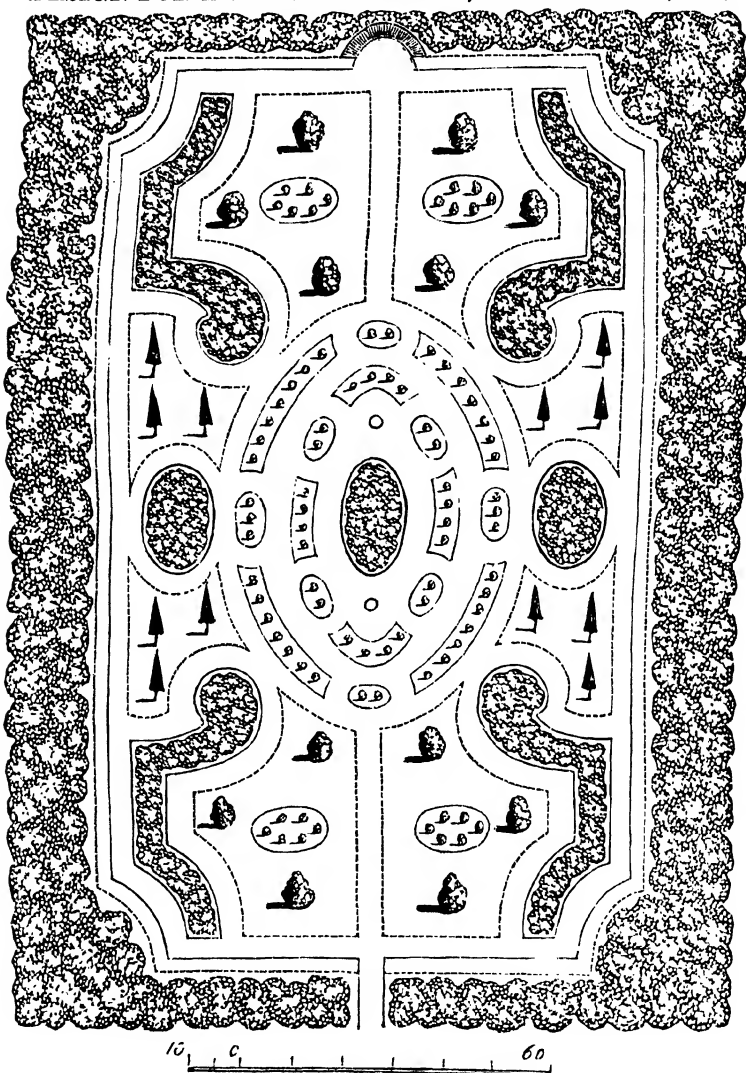
In the neighbourhood of Paris they remained devoid of any protection, without sustaining any injury, and pushed freely in the spring.

It has been calculated the produce nearly doubles that of the potato, being about twenty-four tons per acre.

For culinary purposes as well as for cattle it will, no doubt, become a most valuable vegetable.

To those who are desirous of obtaining farther information, we recommend an excellent pamphlet published by Mr. John Henderson of Kingskerswell, South Devon, entitled "*The Chinese Potato*," price one shilling, which contains a fine lithographic drawing of the root and plant, of the natural size, also a full account of its history, culture, etc.

DESIGN FOR A FLOWER GARDEN, BY T. RUTGER, ESQ.



THE design annexed to this article, it will be perceived, is enclosed by a thickly planted shrubbery and a verge of grass inside. Should water be available, the oval clump in the centre may be converted into a basin for gold and silver fish. The small circles, one at each end of the clump, are intended as sites for vases to contain flowers. At the extreme end is a place indicated for a circular seat or alcove. The shrubs selected for planting on the compartments of grass should be dwarf evergreens of the choicest kinds.

REMARKS ON SCHIZANTHUS RETUSUS.

BY AMIOUS.

IN a recent number some particulars are given of this very handsome genus of plants. I beg to contribute a few additional observations, and in doing so remark that the roots of all the species of *Schizanthus* are very tender, and easily injured; the first effect of injury visible is the drooping of the leaves of the plants, as if for want of water, which is too often administered as a remedy; very shortly after drooping, the plant falls over, the stem having cankered just above the soil. We have more than once experienced this; and as a remedy recommend the pots in which they are grown to be well drained, and the plants to be rather elevated in the centre of the pots, judicious waterings, and light soil. Those intended for the principal flowering should be sown the previous summer, or early in the autumn; and in February or March another sowing should be made to succeed. The autumn sowings, or rather those of the previous summer, should be sown in the middle of July and beginning of August. Light rich mould is the most suitable for the purpose. As soon as the plants have formed two proper leaves, pot them in sixty-sized pots, drained so as to allow the water to pass off freely. They should remain in these pots in a cool airy part of the greenhouse or dry frame during the winter; and about the beginning of March be shifted into pots a size larger, which shifting should be repeated as often as the roots reach to the sides of the pots. The soil should be composed of about equal parts of peat, well-rotted dung, and light sandy loam. When the frosts are over, the plants may either be turned into the borders in a light sandy soil, or reserved to flower in pots at the option of the cultivator.

HOLCUS SACCHARATUS.

BY MR. JOHN HENDERSON, KINGSKERSWELL, SOUTH DEVON.

WHILST travelling, in the autumn of last year, in Belgium and France, I met with the *Holcus saccharatus*, the properties and qualities of which I now purpose to describe. It is not strictly speaking a new plant, since it was cultivated in Italy in the fifteenth century, where it was probably introduced by the Venetians and Genoese, during the period of the great maritime intercourse which then existed. It was not, however, known among us until about five years since, when M. de Montigny, the French consul at Shang-Hai, sent a collection of seeds to the Geographical Society at Paris, among which was found a packet labelled "Sugar-cane of the North of China." These seeds were distributed with great liberality in France, and, as in the case of the *Dioscorea*, many experiments were tried, and the results carefully noted. These have been most fully described by the able Editor of

the *Gardeners' Chronicle* (in an article, January 20th, 1855), which is so replete with information that, in availing myself of the kind permission I have received, I shall quote portions of it. "The juice of the *Holcus* furnishes," M. Vilmorin, Directeur of the Jardin des Plantes in Paris, observes, "three important products—sugar, alcohol, and a fermented liquor analogous to cider. When the juice is obtained from peeled canes it is almost colourless, and may be said to consist of merely sugar and water. Its density varies from 1.05 to 1.075, and the proportion of its sugar from 10 to 16 per cent. Sometimes, however, as much as a third of the total amount of sugar is not crystallizable, and to this circumstance is attributed the facility with which the juice enters into fermentation, and the large amount of alcohol it affords compared with the quantity of sugar directly indicated by the saccharometer. From this it appears that the saccharine matter of the plant cannot be rendered wholly available in the sugar manufactory; for about one-third of it is lost. On the other hand, the state in which that one-third exists is considered the most favourable for the distiller, and for preparing a fermented liquor resembling cider. It is not expected that the *Holcus* can compete with Beet as regards marketable sugar produced in the north and middle of France; but in the south of France and Algeria, or indeed in any region between where the Sugar-cane ceases to thrive and the 44th degree of latitude, the *Holcus* may be profitably cultivated for sugar." Elsewhere M. Vilmorin concludes, from the results of his experiments, that it will be most advantageously cultivated for its alcoholic products. Its value in this respect may be estimated by the result of some experiments which he has made. He obtained from stems, from which the peel had been stripped, at the rate of from 55 to 60 per cent. of juice. The upper joints and spikes were only cut off; but by cutting off more, and subjecting the stems to a better process of crushing, he thinks that 70 per cent. of juice could be obtained. The quantity of stems employed, large and small together, was 553 lbs., which gave 23 gallons of juice, of the density of 1.052; and as the pressing was done in a common cider press, he estimated that upwards of three gallons were lost in moistening the large surfaces of the apparatus.

"The quantity of sugar from the *Holcus* has been estimated higher than that from Beet-root; but the small difference would not compensate for the extra labour required for preparing the canes, and for the greater difficulty in extracting. The quantity of spirit, however, far exceeds that derived from Beet-root, the difference being upwards of sixty gallons on the produce of an acre. A liquor resembling cider can also be made from the *Holcus*, and is said to be very good when properly prepared. The quantity of juice would be 1207 gallons from the produce of an acre. For making this liquor, the canes require to be either exposed to the sun for several days, in order to concentrate the juices by evaporation, or to be placed in a slow oven; or the juice, after being pressed out, must be boiled down to the required

density, along with about seven ounces of fresh oak chips for every twenty-two gallons of juice. The juice readily ferments with the addition of a little yeast, or with a bunch of grapes squeezed into it."

The above statements have been taken from M. Louis Vilmorin's reports. There is no doubt that the *Holcus saccharatus* may be profitably grown in England for distillation (provided no objection be made by the Excise authorities). Not only may the above commercial articles be prepared from it, but that which has hitherto been considered as refuse is found to consist to a very great extent of excellent fibre, which can be readily extracted and bleached, and is worth at least £10 to £15 per ton to the paper-makers. This very important fact seems to remove all doubt as to the value of the *Holcus* to cultivators.

I pass by the consideration of the question as to the facilities offered by this plant for the making of sugar, since, as a great portion of the saccharine matter cannot be crystallized, it is the more valuable for the purposes of distillation, inasmuch as, from that very fact, it produces an alcohol of better quality. It is in this point of view that I consider this plant demands *especial* consideration, since the sugar it contains being of a nature analogous to that of the grape, renders it of more than ordinary value. This will, I think, be seen at once by a careful perusal of the article already quoted; but in addition thereto I will adduce the opinion of Dr. Turrell, who, in a communication to the Minister of War, informed him that "M. de Beauregard having fermented (by means of the refuse of grapes) a quantity of the juice of the *Holcus* in his wine-vats, obtained an alcohol of excellent flavour, which he sent to the market at Marseilles, where it realized the same price as the ordinary alcohols there exposed." Now when we consider how materially the wine crops have been affected by disease, it is of the utmost moment that some great substitute should be provided. Of all that have yet been tried, Dr. Turrell assigns to the *Holcus* the highest place, since, he says, it produces an alcohol altogether superior to anything else that has been proposed. He further informs us that the district of Toulon will be in a position to cultivate this year (1855) 2500 acres. Estimating the alcohol extracted at the rate of five per cent. upon the juice, he reckons the produce at 28,000 hectolitres of pure alcohol; this being valued at 180 francs the hectolitre, would yield a return of 5,040,000 francs, being at the rate of £86 per English acre. And when we take into account the statement of the Doctor, that this estimate is less than the actual return, we cannot but be surprised at the enormous profit resulting from its cultivation, and many will doubtless see that to till the fields at home will be more remunerative than a long voyage across the sea to dig up the gold of California.

These, then, are the results of the experiments already made, and they are such as, in my opinion, to convince any who consider the question impartially, and who also take into account the simple method of its cultivation, that a more valuable or remunerative plant has not

been presented to the notice of the public for many years past, if ever. There are points, however, which demand consideration, and these have been so well put, with his usual foresight, by Dr. Lindley, that in answering his questions I seem to meet all that can arise. He asks—1st. Whether our climate is warm enough for it? Experience alone can show; but from the fact of its growing in Belgium and the north of France, I think there is every reason to answer the question in the affirmative. 2nd. Whether the Excise laws will permit its use for distillation? Here, again, we could only solve this difficulty by an appeal to the Excise authorities. Their past course of action, however, would lead one to augur that they would give facilities for this purpose, when we consider the large amount of grain which would be saved to the country. It is well known that at one period most stringent laws were in force as regarded the manufacture of sugar, and that now the cultivation of beet-root in Ireland for this purpose is not only allowed but encouraged. But supposing they did not, the grower has still a remunerative field for its use; since, carefully manufactured, it would produce a cider of a rich and sparkling nature, yielding, as already shown, a produce of 1207 gallons per acre; and, as it is sown in May, and the ground cleared in November, this would be no small addition to the cultivator's annual receipts. 3rd. Whether its refuse can be utilized? I answer, undoubtedly. I have discovered that the plant contains a large amount of fibre that can be used in the manufacture of paper; whether of the finest quality yet remains to be seen. If it meets the last requirement, its value will be considerably enhanced; but it has been already ascertained (from specimens submitted to competent judges) that its market value is, as stated by Dr. Lindley, £10 per ton. An acre would yield about four tons, or £40, after the extraction of the saccharine matter. So that even if it should not be allowed to be used for distillation, even if few should be disposed to make cider, it would amply repay cultivation for the fibre alone. As an article of food for cattle it is also invaluable; it is used in India, under the name of *Jowaree*, largely, in preference to the coarse grass or hay obtainable there, in feeding their hunters and chargers, which thrive well upon it; so much so indeed, that when sent to the coast for racing purposes, a supply of it invariably accompanies them.

It seems, as I write, that I am describing that of which many have dreamt, but few hoped to see. It seems as if I were dwelling in imagination upon a plant which all would welcome as a boon; but I am doing no such thing. I am merely giving a dry detail of positive facts; and those facts I must leave to tell their own tale, and exert their influence upon the several classes of readers most deeply interested in this question.

All soils suitable for cereal crops seem to be adapted to this plant, but alluvial ones appear to agree with it more particularly. I have also seen it vegetate admirably in a light stony soil. It may be sown (and this is the best way) about the middle of May, after the ground

has been well worked, and prepared as fine as possible, in drills of from twenty to twenty-four inches apart, and in sowing, the seed must be covered very lightly with earth. When up in June, it will be necessary to weed the plants, at the same time thinning them out to one foot apart. This operation requires care, as the plant in its young state resembles so much the surrounding herbs, that it can scarcely be distinguished from them.

The second method, and which I merely mention, as many parties may have only procured a small packet of seed, is to sow, on a gentle heat, or a warm sheltered situation, in April, and afterwards transplant to the above distances. By this means the plants will be considerably advanced; although, from experiments already made, it does not appear to have any effect in enhancing its value, as far as its saccharine produce is concerned; and moreover, as it appears this plant is essentially rich in hydrocarbonaceous products, the best mode of manuring the ground will be by digging or ploughing in green crops in the month of April, after the manner so extensively adopted in Germany.*

NOTES ON NEW AND SELECT PLANTS.

29. *Datura humilis*. Nat. Ord. *Solanaceæ*. Syn. *D. flava*, *flore pleno*. This fine species has been cultivated in this country since 1829, but is still very rare in collections. It is inferior in size to most of the genus, attaining only about four feet in height, compact and bushy habit, the main stem robust and thick. The flowers are numerous, large and open, constantly double, of a clear amber-yellow, measuring six inches across, and nine in length, trumpet formed; they exhale a feeble but agreeable odour. It is altogether an excellent acquisition for the greenhouse or conservatory; it is, however, sufficiently hardy to bear the open air during the summer. The *D. alba* is indigenous to India, and it is thought this species has the same origin, but we cannot say definitely. (*Flor. des Serres*, 972.)

30. *Stanhopea devoniensis*. Nat. Ord. *Orchideæ*. Syn. *S. maculosa*. This handsome species has been dedicated to the Duke of Devonshire. It has been for some time in our collections, and is believed to be a Peruvian introduction. It resembles in colour *S. tigrina*, but is easily distinguished by the form of the epichilium. Each blossom is about three inches long, and three broad; pale sulphur, ornamented with large spots and blotches of a bright crimson maroon. (*Flor. des Serres*, 974.)

31. *Tydaea gigantea*. Nat. Ord. *Gesneriaceæ*. Syn. *Achimenes gigantea*. This is the first of four Gesneriaceous hybrids obtained in 1853, in the establishment of M. Van Houtte, at Ghent, through the

* For fuller particulars we refer our readers to Mr. Henderson's excellent pamphlet on *Holcus saccharatus*, its *Description and Culture*, which also contains an admirably engraved figure of the plant.—EDITOR.

33. *GEONOMA CORALLIFERA*. Nat. Ord. *Palmaceæ*. A small reed-like Palm, lately received at Kew from the Jardin des Plantes, at Paris. Its native country is unknown, but Sir William Hooker considers it a probable inhabitant of the tropical parts of South America, where upwards of thirty species of this genus have been detected and described by various authors. It usually attains the height of five feet, having a stem of about two inches in diameter, at the foot of which the roots form a conical mass, with the upper portion exposed. The leaves are terminal, ten or twelve in number, each about two feet long, split half-way up, forming two broad acuminate lobes; the margin is serrated. From the axil of the leaves the peduncle rises, a foot long, bearing a cylindrical spadix, almost as long as the latter, which is at first green, and afterwards of a bright coral-red; on this the flowers are produced, which appear like red beads arranged spirally. (*Bot. Mag.*, 483.)

34. *ÆCHMEA MUCRONIFLORA*. Nat. Ord. *Bromeliaceæ*. Sent to Sir William Hooker from Demerara, by his Excellency Governor Barkly. It first flowered in this country in September, 1854. The foliage is about a foot in length, of a bluish-green, provided with dark brown spines. The flowers are yellow, and are borne on a spike about four inches long. The bracts are large, and scarlet. The fruit is a pyramidal berry, of an intense blue. It requires the temperature of a stove. (*Bot. Mag.* 4832.)

35. *TALINUM POLYANDRUM*. Nat. Ord. *Portulacææ*. An annual, which first flowered in the greenhouse at Kew, in August, 1854. The leaves are about three inches in length, narrow, fleshy; stems somewhat red, nine inches long. The flowers are rosy purple, resembling a small *Calandrinia* in form. It is a native of the Swan River settlement, and seeds were sent to this country by Mr. Drummond. (*Bot. Mag.* 4833.)

36. *BILLBERGIA WETHERELLI*. Nat. Ord. *Bromeliaceæ*. For a moist stove this is an acquisition, being very showy, and of easy culture. It is a native of Brazil; plants were sent from Bahia by James Wetherell, Esq., British Vice-Consul at that city. It flowered in December, 1854. The leaves are radical, nearly a foot long. The flowers form a thick pendent spike, rose, white, and blue; the bracts are large, in many cases three inches long, of a brilliant red. (*Bot. Mag.* 4835.)

37. *BOLBOPHYLLUM LASIANTHUM*. Nat. Ord. *Orchideæ*. Syn. *Anisopetalum lasianthum*. A native of Manilla and the Indian Islands. A specimen has flowered at Mr. Loddige's. It is a large species, the foliage measuring seven inches by two. The flowers are dull purple, two inches long, clothed with long bristles. (*Gard. Chron.* 111.)

LIST OF SELECT AND NEW FLORISTS' FLOWERS.

ROSES. HYBRID PERPETUAL.—*Alexandrine Bachemeteff*, large and fine, vivid carmine, very beautiful. *Auguste Guinoiseau*, cherry-red, very large and fine. *Baronne Heckeren de Wassenaar*, deep rose, large, full and fine, extra. *Baronne Hallez de Claparède*, shaded crimson-red, large and full. *Caroline de Sansal*, flesh colour, with a rose centre, beautifully cupped, large and very double. *Charles Boissière*, flame coloured, large full flower, excellent for pot culture. *Duchesse d'Orléans*, rosy blush, tinged with lilac, fine bold flower, good form. *General de Brea*, bright cherry-crimson, globular, large and full. *General Castellane*, velvety crimson, large and fine form, not a very robust grower. *General Cavaignac*, lively shady rose, beautiful shape, large and very double. *General Jacqueminot*, rich velvety vermilion, not very double, but large and fine form. *Gloire de France*, crimson-red, large and very double; the best rose known for forcing. *Inermis*, rose, dark centre, splendid. *Jeanne d'Arc*, white slightly tinged with rose, large and fine. *Jules Margottin*, immense flower, rich deep crimson, remains a long time in flower and does not change, extra fine. *Louise Peyronny*, silvery rose, satin-like petals, large and double. *Madame Domage*, bright deep rose, large and fine form. *Madame Harriet Stowe*, delicate rosy blush, large and beautifully cupped, very fragrant. *Madame Fremion*, bright cherry-pink, large and fine form. *Madame Recamier*, delicate flesh, shading to pure white. *Paul Dupuy*, a rich shaded crimson-red, beautifully cupped and very full, fine. *Prince Leon Kotschouby*, clear cherry-carmine, petals of a fine substance and form, remains a long period in flower, and does not change its colour. *Souvenir de Leveson Gower*, shaded cherry-red and crimson, large and full, very fine. *Souvenir de la Reine des Belges*, very brilliant carmine, fine form. *Triomphe de Paris*, ruby-crimson, very fine form, large and beautiful. *BOURBON*.—*Apolline*, delicate pink, extra large and fine. *La Quintinie*, dark velvety lake, one of the deepest roses grown, very fine. *Leon Oursel*,

fiery pink, large and full, very good. *Louis Odier*, bright rose, robust habit and fine form. *Madame Angelina*, salmon-yellow, very distinct and superb. *Prince Albert*, bright cherry-crimson, blooms in clusters, extra full and fine. *Souvenir de Desiré*, violet-crimson. *Souvenir de l'Arquebuse*, ruby, very beautiful. *Souvenir Dumont d'Urville*, cherry-red, shading to violet. *Vorace*, lively crimson, shaded with purple, fine form. TEA-SCENTED CHINA.—*Auguste Vacher*, golden salmon, very beautiful. *Canari*, canary-yellow, not very double, and rather a delicate grower, but distinct. *Gloire de Dijon*, fawn-yellow, tinged with rose, very large and fine, powerfully fragrant; a great acquisition. *Madame de St. Joseph*, rosy salmon, very large and fine. *Madame Melanie Willemorz*, light nankkeen, globular, large and double, fine. *Moiré*, pale yellow, splendid. *Souvenir d'un Ami*, delicate salmon shaded, large and very beautiful.

CHOICE NEW ANNUALS.—*Alonsoa Warscewiczii*, a new and splendid half-hardy annual of beautiful habit; the flowers are borne in spikes, brilliant scarlet. *Dianthus hybridus, flore pleno*, an hybrid between the Carnation and Spanish Pink, crimson, double, and beautifully sweet-scented, a foot and a half high, new and fine hardy annual. *Dianthus imperialis albo striato*, a new and beautiful dwarf, striped Indian Pink, growing about half a foot high. *Elichrysium compositum maximum*, flowers large and double, of various shades of colour from bright yellow to deep scarlet, grows two feet high, hardy annual, new and very fine. *Escholtzia tenuifolia*, a lovely dwarf annual, well adapted for sowing in masses or for edgings, a delicate clear straw-yellow, profuse bloomer, compact habit and neat foliage, growing about nine inches high, hardy and fine. *Gypsophila muralis*, a pretty dwarf hardy annual with small glossy foliage, and producing abundance of red flowers; it does not attain more than half a foot in height, which renders it suitable for edgings or small beds. *Helianthus argophyllus*; this Sunflower has beautiful silvery foliage, with bright yellow flowers, hardy, new and ornamental. *Leptosiphon aureus*, a very pretty little hardy annual, dwarf compact habit, bright golden yellow flowers produced in abundance, rendering it very showy in pots or beds. *Leptosiphon luteus*, somewhat similar to the last named, flowers paler yellow, grows about nine inches high, hardy. *Limnanthes sulphurea odorata*, yellow edged with white, new and hardy. *Linum grandiflorum rubrum*, one of the most beautiful annuals in cultivation, large bright crimson flowers, very free bloomer, and well adapted for pot culture, grows one foot high, extra fine. *Perilla nankinensis*, a new and curious plant with crimson leaves, producing a good effect amongst bedding plants, a foot and a half high, half hardy. *Reseda odorata myriophylla*, a pretty and distinct new shrubby Mignonette, producing at every point of growth a large spike of flowers, handsome pinnated foliage, distinct and fine. *Sabbatia campestris*, elegant habit with glossy foliage, flowers are produced in abundance, rosy pink with a yellow centre, each about an inch in diameter, new and splendid half-hardy annual. *Whitlavia grandiflora*, flowers resembling the Canterbury-bell, large dark violet, free blooming, fine and showy.

NOTES FROM KEW.

BY MR. W. S. PRESTOE.

THEYSACANTHUS RUTILANS. Nat. Ord. *Labiatae*.—Leaves opposite, ovate. Flowers in long straggling spikes, tubular-shaped corolla, of a dark red colour. It is a pretty stove plant.

HYPOCYTIA GRACILIS. Nat. Ord. *Labiatae*.—Leaves ovate, opposite, covered with small grey hairs. The flowers are produced from the axil of every leaf; they are tubular shaped, and the extremity expands wide, divided into five segments; the outside is white, and the inside spotted with brown. It is a very neat, creeping plant, well suited for growing in baskets suspended from the roof of the stove. It blooms very freely, and merits a place in every stove.

SCIADOCALYX WARSCEWICZII. Nat. Ord. *Gesneriaceae*.—Leaves opposite, ovate-lanceolate, and crenate (the leaves grow very regular), covered very thick with hairs; from the axil of each leaf arises a peduncle, and from its extremity branch several pedicles, and at their base there are two bracts, heart-shaped. Sometimes the pedicle again branches and forms another, at whose base there are two bracts; at the extremity there is a solitary flower, tubular shaped, of the *brightest orange* colour; the extremity of the corolla is divided into five segments; the inside of the corolla is yellow, beautifully spotted with lake. It is a splendid stove plant, and I think, when it is better known, it will be a great favourite.

BEGONIAS.—Amongst this interesting genus now in bloom there are *B. urophylla*, with very large dark green leaves, and large trusses of light pink-coloured flowers; *B. nitida*, the flowers in very large panicles, of a pretty pink colour; *B. ulmifolia*, *B. rutilans*, and *B. dipetera*, each very good species, and producing large trusses of pure white flowers, contrasting prettily with their fine foliage.

DIPORIDIUM ARBOREUM.—Leaves alternate, ovate. Flowers in umbels, like the common cherry, upon the old wood; they are of a beautiful bright yellow, and very sweet scented. It is a very free flowering plant, and highly merits a place in every stove.

ADENOCALYMNA COMOSUM.—Leaves opposite, ovate-lanceolate. Flowers in large trusses, of a bright golden-yellow. It is a very fast-growing stove climber.

ARDISIA ACUMINATA. Nat. Ord. *Myrsineae*.—This beautiful stove shrub is very charming at this season of the year, its different-coloured berries, as black, red, green, and white, at the same time have a pretty appearance. *A. crenata*, also, with its rich red berries, is very beautiful. In the orchid house there are in bloom *Dendrobium speciosum*, *D. nobile*, and *D. moniliforme*; they are excellent species, and valuable ornaments at this season.

NOTES ON THE VEGETATION OF ROUMELIA AND BULGARIA.

WE have no doubt that the following interesting remarks on the botany of the provinces bordering on the Black Sea will be very acceptable information to our readers; they are the substance of a communication made to Sir William Hooker by Lieutenant-Colonel Cocks.

The common scrub of Bulgaria is composed of dense bushes of *Paliurus aculeatus*, *Rhus Cotinus*, and the common stove *Berberry*, intermixed with small trees of the *Hop Hornbeam*, and some small *Oak*, making the whole of the country like one vast shrubbery, particularly pretty when the *Paliurus* and *Rhus Cotinus* are both in flower, the former making a bright yellow blaze, and the *marabout feathers* of the latter giving a hazy, misty look, as if the setting sun were shining on a cloud, giving it an orange and crimson tinge. The flowers beneath are *Sweet William*, or something akin to it; the large brilliant *Lychnis fulgens*, looking like a bright crimson *Carnation*; *Erythraea*, the common *Centaury*, a yellow *Geum*, two varieties of *Campanula*, a *Statice* growing in pure dry sand, a harsh branching dwarf variety, with pale whitish flowers; several varieties of the family *Borago*, including *Viper's Bugloss*, and a most lovely capitate *Lithospermum*, with bright ultramarine flowers with a brilliant white eye, which would have been a great acquisition to the bedding-garden, if I had been fortunate enough to have procured seed later in the year. This, with the *Statice*, and the yellow *Immortelle*, and a pink *Helichrysum*, were all growing on a sandy waste at Aladyn, among some curious rocky columns of natural formation. Some of the small trees were enveloped in garlands of *Traveller's Joy* (*Clematis vitalba*). Large *Thistles* were in great quantities, with fine crimson heads, growing to about two feet high; and climbing among the shrubs was a lovely, large, white *Convolvulus*, nearly as large as a coffee-cup; amongst twiners were *Vines*, *Briony*, and a shining heart-shaped leaf, with thorny tough stems, very like a *Smilax*, but I could not find a flower. Not a *Fern*, *Lichen*, or *Moss* to be found. I found a *Paony* in seed once or twice, and some fine *Verbascums*, particularly a branching variety, which I take to be *ramigerum*, looking like a plant of common Broom. There was an herbaceous plant, which I did not know, growing in a spike, with flowers of a dirty white, prettily veined with brown, with an intensely white lip;* and the *Thorn Apple* (*Datura stramonium*) was very common, also the common flax and hemp.

In the neighbourhood of the Bosphorus the trees which take your eye the most are the *Oriental Planes*, some of them of gigantic size; and the banks from Stamboul (Constantinople) to the Black Sea are

* I opened one of the flowers and made a slight sketch; the way it grew was like a *Mullein*.

gay in the spring with *Erica arborea*, *Cistus*, *Wild Lavender*, *Judas Trees*, interspersed with which are dwarf shrubs of *Arbutus unedo*; and in the hedges are found the true *Damask Rose*, with a peculiar and delicate scent, the foliage looking as if covered with an impalpable powder, the flowers of a very delicate flesh colour; and *Jasminum revolutum* in quantities; *Sweet Bay*, *Quercus coccifera*, bearing on the leaves, in spring, a scarlet bladder coccus. Some very pretty varieties of *Oak*; one dwarf, with very downy young foliage, grey and woolly; one with very minute acorns, looking as if made for a lady's head-dress; another, very large and pendulous; also *Crataegus pyracanthus*, and *Privet*. The *Castor-oil plant* grows there in gardens, to the size of apple-trees; and in the "Prince's Islands," opposite Stamboul, is an *Acacia*, called by the Turks "ambeer," very like *A. affinis* in foliage and flower, except that in place of flowering in the spring they are produced in September, when the Greeks pick the round yellow blossoms, and after fastening them to sprigs of *Arbor vitæ*, they decorate their churches; and the Turkish ladies place the flowers among their clothes, as they have a strong aromatic smell, something between pine-apple and sandal wood. There is a fruit called "acrania," either *Prunus* or *Cerasus*, like an elongated Cornelian cherry, very astringent in taste, making a delicious drink, after stewing and mixing in cold water; the foliage like the spindle-tree; but I could not find out its name, but have given James Veitch, jun., some of its elongated stones, which are something like those of a date. There are whole fields of purple and pink *Larkspur* about Scutari, but whether wild or cultivated I could not discover, though often evidently self-sown. The only ferns were *Lastrea aculeata* and *Pteris aquilina*.—*Hooker's Journal of Botany*.

ROSES PROPAGATED BY CUTTINGS OF THE ROOTS.

BY MR. CHARLES GREY, OF BELLE VUE CASTLE, WESTMORELAND.

HAVING been advised to try the experiment of raising Rose trees by taking cuttings off the roots, I did so, and found it to succeed admirably. The mode I adopted was as follows. The first week in March I took some of the long, thick, and fleshy-looking roots of my English, French, Moss, and Perpetual Roses, and cut them into pieces about three inches long. I then smoothened the surface of a border in front of a peach wall, upon this I laid the roots flat, at about six inches apart; when the roots were placed, I covered them with fine sifted soil half an inch deep, gently beating it to the cuttings; I then laid four inches more of loamy soil well enriched with rotten cow-dung, a year old, giving the whole a good watering, and when dry, smoothened the surface over with the back of the spade. By the middle of May every cutting had sent one, and some two strong shoots, and on examination, I found the soil I had covered

the cuttings with, to be filled with a mass of fine roots; at this time (July 5th) the shoots are more than a foot high.

I have anxiously watered the bed, as, being in a sunny situation, I found it got dry, more especially so, from the bed being raised upon the old surface of the border; it would have been better to have sunk it, so as finally to have it even with the surrounding soil.

I have also grafted many of the above sorts of Roses, as well as the *China* and *Tea* sections, into pieces of the more vigorous growers, and after fixing the graft in a piece of root which was only about three inches long, I planted it firmly, leaving only the graft above the soil in sandy loam, and plunged the pot in a gentle bottom heat; ten out of every dozen have uniformly united and made good plants the same season.

Whilst on the subject of increase by *pieces of roots*, I may remark that many of the *Pelargoniums* readily strike by bits of the *somewhat firm* portions of the roots. Last spring, I cut in a quantity of the *Purple Unique* bedding Geranium, and every piece pushed a shoot. I had above two hundred nice plants to turn out into the open ground by the end of May. The bits of roots were each about two inches long. Subsequently, by this process, I have propagated many of the New French spotted Geraniums, as well as Cape species.

MISCELLANEOUS.

HORTICULTURAL SOCIETY'S MEETING, HELD AT THE ROOMS IN REGENT STREET, FEBRUARY 6, 1855.—Some new regulations relative to these Meetings have recently been made by the Society, and *Medals* are now offered for articles shown, similar to what is done at the garden exhibitions, so that an exhibitor calculates on a reward for his productions. This Meeting was the first held under the *new system*, and it has succeeded most admirably. The *extent* and *excellence* of the articles presented very far exceeded those of any Meeting previously held there, and the number of visitors was so great, that the large room as well as the passages leading to it, besides an ante-room, were quite crowded. It was a *high treat* indeed to see, at this early period of so severe a season, the superb specimens of plants, flowers, fruits, and vegetables; so superior were they, that it was a general remark, "This is the best collection of specimens ever brought together at a Meeting held in these rooms." It afforded a delightful proof of what not only can be done, but what had been accomplished by the skill and energies of both gardeners and nurserymen, as well as amateur cultivators.

The award of *Medals* was as follows: *New Plants*.—C 2, *Genetyllis fuchsoides*: Messrs. Henderson, Wellington Nursery. *Epa-crises*.—S B, Messrs. Veitch; C 1, Mr. Todman; C 3, Mr. Ingram. *Epiphyllums*.—S B, Mr. Fleming. *Camellias*.—S K, Mr. Higgs.

Indian Azaleas.—S K, Mr. Todman; S B, Mr. Fleming; C 1, Messrs. Rollisson. *Orchids*.—L S, Messrs. Rollisson; S K, Messrs. Veitch; S B, Mr. Woolley. *Chinese Primulas*.—S B, Mr. Green; C 1, Mr. M'Ewen; C 2, Mr. Chilman. *Single Specimens*.—C 1, *Epacris Hyacinthiflora*: Messrs. Veitch; C 2, *Eriostemon myoporoides*: Mr. Todman. *Late Grapes*.—S K, Mr. Forbes; S B, Mr. Clark; C 1, Mr. Snow; H M, Mr. Butcher, Mr. Ingram, Mr. Fleming, Mr. Jennings. *Early Grapes*.—S K, Mr. Forbes. *Pine-apples*.—S K, Mr. Fleming; S B, Mr. Dodds; C 1, Mr. James; H M, Mr. Bailey. *Apples*.—S B, Mr. M'Ewen; C 1, Mr. Snow. *Pears*.—S B, Mr. Tillyard; C 1, Mr. Snow; C 2, Mr. M'Ewen; H M, Mr. Robertson, Mr. Bloore. *Forced Vegetables*.—S K, Mr. Ingram; S B, Mr. M'Ewen. *Forced Salads*.—C 1, Mr. M'Ewen. *Miscellaneous*.—C 2, Seedling Azalea: Mr. Fleming. C 2, Seakale: Mr. Fleming. C 2, Cinerarias: Mr. Todman. C 2, Brussels Sprouts: Mr. M'Ewen. H M, Design for a Winter Vegetable Garden: Mr. John Miller. H M, Model of a Rising Stage: Mr. Smith.

OF NEW PLANTS, Messrs. Veitch had a white-flowered *Calanthe* from Java, an *Oncidium* nearly related to *pubes*, and an *Ansellia*, not remarkable for beauty, from Natal. Messrs. E. G. Henderson showed *Genetyllis fuchsoides*, an *Epacris*-like plant with drooping, purplish-brown, bell-shaped flowers, about the size of an acorn, whose only fault was want of brilliancy; that may, however, improve as the season advances.

Epacris: of these there were several collections, the best of which came from Messrs. Veitch. It consisted of *Hyacinthiflora candidissima*, *Vivid*, and *Fairbairni*. The next in point of merit was furnished by Mr. Todman, gardener to Mrs. Buckmaster. It contained *Hyacinthiflora*, *carnumbrata*, and *candida compacta*. Mr. Ingram, gardener to Her Majesty, at Frogmore, was placed third. The plants were seedlings of his own, remarkably dwarf and well bloomed. The most conspicuous among them was perhaps *Ingrami*, a very brilliant scarlet kind. There was also a striking variety of *grandiflora*, with bright purplish red tubes tipped with white. Mr. Fleming, gardener to the Duke of Sutherland, at Trentham, sent *candida compacta*, a very profusely flowered variety of *incarnata*, and a seedling called *arventissima*. The last-named exhibitor also sent, all the way from Trentham, three nicely bloomed varieties of *Ephyllum truncatum*, all of which, although most troublesome plants to carry, arrived in the most perfect condition, not a branch being broken or a flower bruised.

Camellias came from Mr. Higgs, gardener to Mrs. Barchard, and consisted of good-sized trees of *Donckelaari*, *fimbriata*, and the larger variety of *punctata*.

Of *Indian Azaleas* there were three collections of handsome plants, none of them very large, but all well bloomed. The first, from Mr. Todman, consisted of *optima*, which is one of the most brilliant of all *Azaleas*; *præstans*, and a rose-coloured semi-double

Orchids were exhibited in great profusion, and in excellent condition. Messrs. Rollisson produced *Angræcum eburneum*, a magnificent specimen of this, when well grown, really handsome orchid, from the forests of Madagascar; a less conspicuous variety of it called *virens*, *Vanda suavis*, *Lælia superbiens*, with a noble spike of handsome flowers; *Leptotes bicolor*, quite carpeting the whole top of the pot with flowers; the White Butterfly plant (*Phalænopsis amabilis*). Messrs. Veitch sent *Barkeria Skinneri*, *Oncidium Caven-dishi*, *Angræcum eburneum*, *Ansellia africana*, *Cælogyne cristata*, a most useful winter-flowering species. Mr. Woolley, gardener to H. B. Ker, Esq., sent *Epidendrum rhizophorum*, a species with apricot-coloured flowers, like those of *cinnabarinum*, a colour so rare among orchids; *Phalænopsis amabilis*, *Epidendrum Skinneri*, *Calanthe vestita*, the yellow-eyed variety, which is not near so handsome as the crimson-eyed sort, *Angræcum virens*, and a prettily flowered plant of *Cypripedium insigne*. From Messrs. Jackson, of Kingston, came a collection consisting of one of the best varieties of *Lycaste Skinneri*, the somewhat rare orange-coloured *Calanthe curculigoides*, the pretty *Odontoglossum membranaceum*.

Of single specimens, Messrs. Veitch showed *Epacris Hyacinthiflora*, and Mr. Todman had a good plant of *Eriostemon myoporoides*.

Miscellaneous subjects of exhibition consisted of the following:—A collection of plants remarkable for fine foliage from Messrs. Henderson, of Pine-apple Place; a similar group from Messrs. Henderson, of Wellington Road; this contained seven kinds of *Anætochilus*, viz., *setaceus*; and *setaceus-cordatus*, darker shaded than the former; *setaceus-intermedius*, a dark purple colour; *setaceus-Roxburghii*, a greenish-purple; *Lowii*, green; *Lobbii*, dark green; and *xanthophyllus*, with pure golden midribs and veins; *Lachenalias* and *Cinerarias* from Mr. Todman; *Acacia dealbata* from Mr. Higgs; Lambert's Cone Apple, a sort resembling a small Cockle Pippin, from J. Disney, Esq.; two seedling Apples from Mr. Smee, nurseryman, Halstead; a dish of Cuthill's Black Prince Strawberry, from Mr. Brown, of Waltham Abbey; seedling Potatoes of 1851 from T. L.

Popham, Esq.; Brussels Sprouts, remarkably fine specimens, from Mr. M'Ewen; *Holcus saccharatus*, in a green state, and bearing seed, from Mr. Ingram, of Frogmore; also dried stalks of it and a sample of its fibre from Mr. Henderson, of Kingskerswell. A root and figure of the Potato Yam (*Dioscorea Batatas*), from M. Decaisne, were also exhibited. The root was about the size of a well-grown Parsnip, but, unlike that vegetable, in this case the thick end is that which pushes its way into the ground. It can only therefore be grown with advantage on ridges, and in deep light land; when first taken up this root was said to weigh about 3 lbs. A model of a rising stage came from Mr. Smith, of Hunmanby Hall, near Scarborough, Yorkshire. The shelves in this contrivance were moveable, and were susceptible of being raised towards the glass with the plants on them, or lowered at the will of the cultivator. It was considered that it might be useful in certain cases, more especially if machinery could be applied as the moving power instead of manual labour. Mr. Miller, gardener to Sir W. Smith, Bart., of Eardiston, sent a plan of a span-roofed pit or vinery, 120 feet long and 15 feet wide, heated with hot water. This house is used as a vinery in summer, and as a kind of vegetable garden, *i. e.*, a place for raising forced vegetables, and keeping plants in, in winter, means being provided for turning the tops of the vines out of doors during that season. It was thought to be worthy of commendation on account of its apparent simplicity of construction and general usefulness. Mr. Munro, gardener to Mrs. Oddie, showed a boiler for a hot-water apparatus, together with a plan of the same. It was a square box, about a foot or so deep, filled with flue-pipes. It exposed a large surface to the action of the fire, and appeared to be altogether good in principle; the inventor was, however, recommended to try it in some public garden where attention could be called to it, and a report of its working capabilities obtained. Finally, on the walls of the meeting room were suspended the drawings of *Wellingtonia gigantea*.

From the garden of the Society came, among other things, an example of a wild Hyacinth from Cabul. It was stated that this, which is little handsomer than a common Blue Bell, was in all probability the parent of the beautiful Dutch Hyacinths now cultivated so generally. Also several fine kinds of Begonias.

ON CLIMATE AS AFFECTING PLANTS.—Valleys to be perfectly adapted for growing exotic plants must not be circumscribed, especially if traversed by a river or stream. No spot can be less fitted for conducting the more refined parts of floriculture than a narrow valley through which a river flows, as the constant exhalations from water are calculated not only to saturate the leaves and branches of plants, but, by remaining in the lower stratum of the atmosphere during a frosty night, in many instances occasion all the consequent destruction. All who have had an opportunity of observing the injury sustained by plants in dales from a slight hoar frost, must have noticed that, in those districts which were above the low lying vapours, similar plants

have wholly escaped its effects. This simple circumstance casts much valuable light on the subject of cultivating somewhat tender plants, as well as an early destruction of flowers towards the end of summer. Wherever water exists, it has a constant tendency to lower the temperature; and the vicinities of places wherein it abounds must suffer the greatest reduction of heat. The sea may, however, be considered an exception to this, since its immense and continuous expanse of water retains, through winter, a higher temperature than the superincumbent and surrounding air. Plants growing within a few miles of the sea coast (at least of that portion of it which is not swept by the icy blasts from colder regions) may therefore be presumed to enjoy an increased degree of heat at that season, on account of the incessant radiation from so large a body. On the other hand, by absorbing more rapidly than land the superior heat of the atmosphere, it materially reduces the temperature in summer, and thus maintains a comparative equability. With rivers and all smaller channels of water it is wholly different: the mists which are perpetually arising from them are confined between two ranges of hills, and having no room to disperse, are condensed and precipitated to the earth in cold evenings, and by their deposition upon plants, affording, as it were, an attraction to frost, subside into globules of congealed fluid, the mischief occasioned by which is soon exhibited, after the first action of the sun. But where the valley occupies a broad district, these vapours, possessing, like heat, a diffusive power, are dispersed through even its most remote parts; and their density, with its concurrent effect upon vegetation, is proportionately lessened.

BRIEF REMARKS, &c.

THE SUGAR-CANE.—The sugar-cane grows spontaneously in all the South Sea Islands, and more than *ten varieties* are indigenous. It has been stated, that the best canes now cultivated in the West Indies are those taken there by Captain Bligh. In their native islands they grow remarkably fine. I have frequently seen canes as thick as a man's wrist, and ten or twelve feet between the roots and leaves. The *Iromotu*, a large yellow cane, and the *To-ura*, of a dark red colour, grow very large, and yield an abundance of juice; but the *Butu*, a small, light red, long-jointed cane, with a thin husk or skin, contains the greatest quantity of saccharine matter.

METHOD OF FLOWERING HYDRANGEAS BLUE.—In July, 1853, I took some plants out of the pots, shortened their roots, and shook the soil from them; after which, I repotted them in others, which held four quarts of soil each, and, adding four ounces of pounded alum to each pot of soil, mixed them well together. In the spring of 1854 the plants began to show their flower-buds, which were tinged with a fine light but *rich blue* colour; the plants grew fine, and flowered to very great perfection; they were kept in the greenhouse the whole of the winter and spring, indeed until they had done flowering. The soil was a light sandy loam.—*W. Moore.*

ON THE POMEGRANATE. *Planting and Situation.*—The single and double Pomegranates are hardy enough to stand in the open air of most parts of the south of Britain, and in such situations flower freely, when the trees have attained a good size, and are of several years' standing; but, to plant with the view of obtaining fruit, they should be accommodated with the warmest and most sheltered

spot the situation affords, and always against a south or south-east wall. *Soil*.—A strong, rich, loamy soil is considered the most proper for such trees as are grown within the limits of large pots or boxes; but a lighter and poorer soil, upon a dry subsoil, will be more suitable to trees planted in the open borders, as having less tendency to cause *excess of growth in the shoots*, which would be but *imperfectly ripened* in autumn; it is essential to success that the new shoots be perfectly ripened, to fit them for producing flowers and fruit in the following season.

FLORAL OPERATIONS FOR MARCH.

THE summer display of flowers, both in the flower-garden and greenhouse, principally depends on the preparations made in reference to a *suitable supply* of plants during February and March, especially so where there is much of the summer bedding system adopted. In order to have a bed *fully* ornamented with *flowers*, it is *absolutely necessary* to plant *thickly* at first, and if it turns out that after a while they will bear thinning out, that is readily done, and the surplus ones will do for other places, or striking, if required. When a bed is *thinly planted*, it has, in almost every instance, a miserable appearance throughout the summer. We advise that an *abundance* be provided, and, if possible, be rather beforehand with it in quality and time, so that the stock may be vigorous and *bushy*.

FLOWER GARDEN.—*Auriculas* and *Polyanthus* must have air freely to keep them robust, but protect from wet lodging in the hearts. Give manure-water twice a week; sheep's dung put into a tub with soft water (or old rotted cow-dung will do), to form a strong liquid, is very beneficial. Collect the dung a few weeks before using. If the plants show too many blossoms in a truss, thin them properly immediately. *Anemones* and *Ranunculuses* must be finished planting immediately. (See articles on culture in previous numbers.) Such as were planted in autumn will now be pushing through the soil; it is very necessary to keep the soil *closed firmly* round the plants, if neglected the bloom will be injured.

ANNUALS.—If the weather permit, sow seeds of some of the *hardest* in dry borders. *Half-hardy* and more *tender* kinds sow in pots, or mild hot-bed. After sowing, shade from sun, and take care the surface soil is constantly kept *just moist*, till the plants push, for if the seed be *somewhat softened*, and then allowed to become *dry*, it will be destroyed. If the frost continue and prevent sowing the hardy ones in the border to come into bloom early in the season, then sow some in thumb-pots, and place in a frame or elsewhere, from frost, and turn them into the borders *entire*, as soon as circumstances admit. *Mignonette*, sow in pots, in order to turn out *entire* into *boxes*; sow thinly, pull up all but four in each pot, and when strong enough put them into the boxes, filling up between the balls. Provide for a succession of boxes, to supply them good till autumn.

Pansies in *pots* should be repotted into those they are to be exhibited in at the *Show*, and pinch off the present flowers, whether in or out of bloom. A rather strong loam, well enriched with *old, dry cow-manure*, and a *free* drainage are essential to success; also twice a week give a *root watering* of liquid manure. *Pansies* in beds, also *Pinks*, should have the soil firmly pressed round the plants for a few inches, and protect from wind by fir, yew, or whin branches, etc., round the bed. Give the beds a top-dressing of rich loam. *Pinks* not planted last autumn should be put in beds immediately, with entire balls. *Carnations* and *Picotees* are liable to the attacks of *mildew*, the leaves being spotted; dust them *over* and *under* with sulphur.

At this time of the year is the *trying season* with carnations; protect them from *cutting wind* and *excess of wet*, but give air freely on all proper occasions. Towards the end of the month pot off the plants into their blooming-pots (No. 12 is the usual size), and in each put two, three, or four plants, as the usual growth of the variety points out. Use the following compost:—To two bushels of good, fresh, yellow loam, and three of *well-rotted* horse-dung, add half a bushel

of river-sand, mix them (not sift) well together. Give two to three inches of drainage over the broken pot or other material; spread a thin layer of moss, to prevent the soil filling up between the crocks. Place the plants where they will have a free current of air, but not in a *windy* situation. *Lilium lancifolium* and its varieties must be potted or planted in the open ground. (See articles in previous numbers.) *Phloxes* divide, and if in pots turn out into the border; also any other *hardy herbaceous* plants divide and replant. Plant out, too, the *biennials*, such as Sweet Williams, Scabious, Canterbury-bells, Wall-flowers, etc. *Sweet Violets*, take off runners and plant in frames or beds for *next season's* supply of flowers. (See previous articles.) *Hollyhocks* in pots turn into border towards end of month, in *deep, rich, loamy soil*, on a dry bottom. *Chrysanthemums* to bloom in the open ground, or which are to have their branches layered in sunken pots, in order to form dwarf flowering plants, must now be turned out of pots into the open ground, in a *rich soil*. Put in cuttings now for *pot culture*, one cutting in each thumb, or sixty-sized pot. *Bedding plants* (as Geraniums, Petunias, etc.), cuttings in pots should be potted off singly; stop the leads to make them bushy plants. Protect beds of *Tulips*, *Hyacinths*, *Ranunculus*, and *Anemones*. If any of the plants push floral stems, tie them to sticks to prevent their being broken by winds. The soil must be pressed firmly round the plants. If the frost penetrate so deep as to reach the young embryo flowers of the *Tulips* or *Hyacinths*, and care be not taken in thawing gradually, they will either be wholly destroyed or damaged to some extent. If any Tulip-bulb be affected by canker, the plant will appear sickly; examine it carefully and cut the cankered part clean out, then allow it to dry before filling up. If the foliage even be affected by frost, slightly sprinkle it wholly over with cold water in the morning, shading it for an hour or two from sun, then fully expose it.

GREENHOUSE.—*Cinerarias* must be put in their blooming-pots; water freely, and once a week give liquid manure, and fumigate about once a fortnight, or green fly will prevail. *Chinese Primroses*, give a liberal supply of water; twice a week give manure-water, and the flowers will be of much brighter colour. *Calceolarias*, repot into blooming-pots; let them have all the air possible; only preserve from harm by frost, and fumigate once a fortnight. *Fuchsias*, repot; and now begin to train and form them, the pyramidal shape is the best; standards, with large heads, are pretty. *Pelargoniums*, train and arrange the branches of the large plants. Such plants as are desired to bloom after July must have the leading shoots stopped *now*. Give liquid manure to the large show specimens every third watering. Syringe over head twice a week with soft water. Almost all young plants potted in autumn, or recently from the cuttings put off in autumn, will require the leading shoot to be stopped, in order to have bushy plants. *Tender Annuals*, as *Salpiglossis*, *Globe Amaranthus*, *Balsams*, etc., for ornament in summer, now pot off singly. *Camellias* done blooming, promote their growth, and put in cuttings of the single flowers for grafting. *Chrysanthemums*, pot off cuttings, and pot off autumn-struck ones; pinch off the leads. *Green Fly*; fumigate, or dip over head in strong tobacco-water; any plant attacked do not delay. Pot *Tuberoses*, or plant out-doors, in front of a warm wall.

FORCING STOVE.—Sow seeds of *Dahlias*, *Fuchsias*, *Thunbergias*, etc., also *Chinese Primroses* for plants to bloom next autumn and winter. Pot off singly any sown last month. Pot or repot, *Amaryllis*, *Achimenes*, *Gloxinias*, *Gesnerias*, etc. *Ipomeas*, *Echites*, and similar plants, must be trimmed in, disrooted when necessary, repotted, and be brought in for exciting early growth. *Ixoras* and other plants for *exhibitions* must be duly attended to in tying out, etc. Keep the plants as near to glass as convenience admits. Repot, prune, etc., any others now requiring it, to secure their blooming this year. Syringe over head the entire stock every afternoon, about half an hour before the rays of the sun leave the house, shutting up close before doing it. *Eschynanthus*, etc., for suspended baskets, should now be placed therein. See last month's Floral Operations, which have also reference to many plants that now require attention.



DIOSCOREA BATATAS .



The Floricultural Cabinet.

APRIL, 1855.

ILLUSTRATION.

LYCHNIS SIEBOLDII. Syn. *L. grandiflora-alba*.

THIS charming *perennial* plant is one of the numerous importations of the celebrated naturalist Von Siebold, who discovered it in Japan, and sent it to the establishment of M. Van Houtte as a *variety* of *Lychnis grandiflora*, but having blossomed in M. Van Houtte's collection, he has discovered it to be a *distinct species*, and has therefore named it after its discoverer. The *Lychnis grandiflora* is quite smooth, but *Lychnis Sieboldii* is *pubescent* (downy). The flowers of the latter are larger, and the *surface* of the petals is *quite even*, not *crimped* or *channelled*, as those of *L. grandiflora* are. The outer edge of the flower is *slightly notched*, whilst that of *L. grandiflora* is deeply *toothed* or jagged. The blossoms of *L. Sieboldii* are much superior to those of the other species in form, neatness, and showy character. The Japanese cultivate it as a very ornamental plant, in contrasting it admirably with the brilliant orange flowers of *L. grandiflora*. In habit it resembles the latter, growing from one foot to one and a half high, and forms a good companion to it. It is a handsome plant for the greenhouse, as well as an excellent plant for a small bed in the open ground, its large, pure white, neat flowers producing a striking contrast with the rich coloured of other plants. It is beautiful when grown singly, too, in the flower-border. It is readily increased by division, and easy to retain and cultivate. M. Van Houtte purposes to send out plants immediately. It merits a place in every garden.

MANAGEMENT OF THE INDIAN AZALEAS.

BY MR. THOMAS GREEN, A SURREY GARDENER AND EXHIBITOR.

OBSERVING that very little is said respecting the cultivation of greenhouse Azaleas throughout the pages of your invaluable peri-

odical, and conceiving there is some little ambiguity in the mode of treating them as stated by some of your correspondents, I have presumed to send you an account of their treatment for insertion in your interesting and instructive Magazine.

As soon as the plants have done flowering, if shifting is necessary, prepare some compost mould for them in the following proportions: two-thirds bog earth, one-third well-decomposed tree-leaf-mould, and one-twelfth sharp silver sand; they must not be sifted, but well chopped and broken with the spade; any lumps remaining may be broken with the hand. Having a pot a size larger than the one the plant to be shifted has been growing in, and washed clean inside and out, then proceed to pot the plant, taking care the drainage is well attended to, for upon this depends in a very great measure the success of the plant. In potting, I think it an advantage to place the centre of the ball rather lower than the mould at the outside of the pot, and form as it were a little basin inside, as by this means the whole mass of roots is benefited by the water given from time to time; and if the drainage is effectually performed, the water will pass through as freely and quickly as when the plant is potted high in the pot. The plants being potted, place them in the stove, where attention must be paid to watering when necessary. They will be very much benefited by being syringed all over at least once a day; and in sunny days they will require to be syringed three or four times each day. With this treatment they will grow amazingly, and in the course of six or eight weeks will have made shoots from three to nine inches in length. They must be kept in the stove till the flower-buds for the ensuing year have attained the size of a small pea, which can easily be ascertained by feeling the ends of the shoots; they should then be placed in the greenhouse for ten days or a fortnight to harden, when, if the weather is suitable, they may be placed out of doors in a cool airy situation, till the time for taking in the general stock of greenhouse plants.

Where the plants have bloomed so profusely as almost to exhaust them, tie some moss round the principal stems, and keep it constantly moist; this will cause them to break regularly and grow freely.

Where there is not the convenience of a stove, I recommend that the plants be kept in the greenhouse till the buds are well set; and should this happen so late that there are but two or three weeks for them to have the advantage of the open air, still setting them out will be found highly serviceable.

If the foregoing particulars are attended to, the roots will be produced in such abundance as completely to *fill the pots*; and instead of being liable to perish from *over-watering*, it will be almost impossible to give them enough, the close mass of thirsty roots absorbing an almost incredible quantity of moisture. Treated as above described, all the species and varieties of this splendid tribe will answer the most sanguine wishes and expectations of the cultivator, and I

think it is impossible to bloom some of the sorts properly under any other mode of treatment; instead of producing here and there a flower, as is often the case, the plants will be one entire mass of bloom, expanding their brilliant and beautiful flowers from two and a half to three inches or more across, and commanding the admiration of all who behold them. Where it is required, and the stock of plants is sufficient, the blooming season may be protracted from September till June.

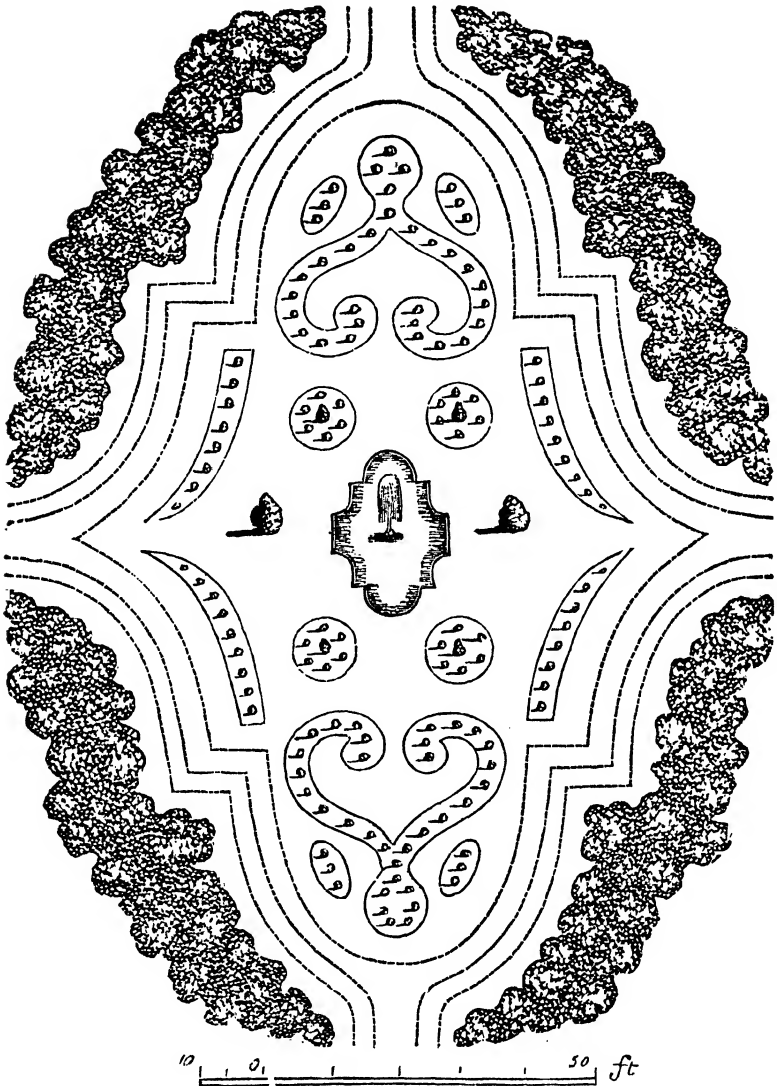
CEREUS GIGANTEUS.

WE have to introduce to our readers' notice the discovery of another monster of the vegetable kingdom in California, which, although not equalling the *Wellingtonia gigantea* in magnitude, is certainly the GIANT OF ITS TRIBE; it belongs to the genus *Cereus*, and has been appropriately named *C. giganteus*. A drawing has been given of this extraordinary plant, from a sketch by Mr. George Thurber, the only person who has seen it in flower, although Dr. Parry forwarded specimens of its bark and spines. Mr. Thurber travelled to the Gila and Sonora rivers, as a member of the expedition charged to explore that region, in the summer of 1851.

This remarkable species is found to the north of the river Gila, descending towards the south to the Sonora, at about twenty miles from Guaymas, on the Gulf of California. Mr. Thurber, in July, 1851, collected the last flowers and the first ripe fruit, and gathered a large quantity of seed. The youngest plants which he observed measured from three to four feet high, and were furnished with narrow furrows and long spines. The smallest plants in flower were about twenty-four feet high, and among the largest individuals which he discovered were *some from forty-five to fifty feet* in height, with a trunk of from five to six feet in diameter. At about twenty feet from the ground the trunk divided itself into several large erect arms, which were again branched, towards the extremities flowers were produced. The trunk and arms are divided with numerous ribs, giving the whole a very grotesque appearance, and are covered with spines about a quarter of an inch long.

The flowers, which are produced near the summit, and continue open night and day, are only about four inches in diameter, and the same in length, of a light cream colour, with greenish-white sepals; the stamens and anthers are clear yellow. The fruit is oval, about two inches long, and one in diameter, green and reddish towards the summit.

DESIGN FOR A FLOWER GARDEN, BY T. RUTGER, ESQ.



THE above design, it will be seen, is enclosed within a shrubbery which is bordered with a grass verge. There are four entrances in the plan, but if preferred, an alcove or covered seat may be placed at one of the ends. A pond with a fountain occupies the centre. The beds are laid out on grass.

MANAGEMENT OF BALSAMS.

BY MR. JAMES MAYOR, SUMMERFIELD HOUSE, BOWDON, MANCHESTER.

HAVING met with considerable success in the cultivation of this very beautiful annual, perhaps the particulars of the system may be useful to some of your readers. But before we proceed to detail the matter, probably a few general observations would be advisable, as very important matter is often omitted when we confine ourselves to the bare rules of potting and watering, and although these two operations constitute the grand basis on which the life of the plant depends, yet there are other seemingly trivial matters which materially assist in the elaborate development of the same. This annual is within the reach of all, and those who have convenience may expect to reap a tolerable amount of success by adhering to the method laid down.

But a very short period since, the prevailing opinion in reference to the amount of heat required was, that the temperature in which they could alone be expected to succeed should be considerably higher than that of our ordinary forcing-houses; this, to a certain extent, is quite erroneous, although we cannot contradict the fact that they will grow amazingly in the before-mentioned temperature, if a corresponding amount of light and moisture be supplied. By this system they are by no means so handsome in habit, nor, in consequence of the rapidity of growth, are they so durable. Being of a highly succulent character, the great excitement appears to rob the plant of its native capabilities, and as a consequence to render it unfit for the purposes it was primitively intended for. We would rather sow earlier than hasten the plants by an unnatural degree of excitement; by a gradual system of growth they become bushy, and, even in the absence of flowers, are very interesting objects to look upon. It is the practice with some growers of this plant to take away the flowers as they appear, and pinch the extremities of the shoots until the plants arrive at the desired dimensions; this, however, in the course of our treatment, we have never been obliged or disposed to do, inasmuch as the highly nutritive character of the compost used dispenses with such operations, by retarding the formation of flowers, and producing lateral shoots wherever there is a possibility for their emission. Every precaution should be taken to prevent the roots from becoming matted, before the plants attain the size desired; also that the soil does not become dry, as repeated occurrences of this kind would very naturally have the same tendency as an insufficiency of room for the roots. Throughout the whole proceedings they should be slightly shaded during bright, sunny weather; but in other respects in as light a situation as it is possible to give them. The amount of atmospheric moisture must, under all circumstances, depend upon the temperature of the house, or other structure of which they may be occupants.

Two sowings of seed are made, the first in the beginning of February, the other a month later, in flat pans, well drained; the com-

post consisting of equal parts of leaf-mould and thoroughly decomposed dung, with a little turfy loam, all well broken and incorporated. They are put into a slight hot-bed, where they remain until the plants are large enough to be transplanted singly into four-inch pots; they are put back again into the bed until they become a little established in the pots, when they are removed to an intermediate house, where, placed near the glass and receiving due attention, they soon make nice specimens. When considered large enough, there must be no more repotting, but give frequent and copious doses of liquid manure, which will add greatly to the beauty and size of the flowers; when in flower, they may be safely transferred to the conservatory, where they will long continue to exhibit their beautiful camellia-like blossoms.

FLORA OF JAVA.

THIS is my second visit to Java. I came down at first about three months ago to arrange all this matter, and I then returned to Singapore for my family; we landed here this morning. We are in capital quarters, in the house of a Dr. Burger, who is one of the Directors of the Company; he was formerly for many years attached to the Government Natural History staff, and was with Van Siebold for a long time in Japan, of which his reminiscences are very interesting; he is a botanist, too, as well as a zoologist, so we get on famously. When here before, having to remain six weeks, I took the opportunity of going up to the mountains. I first spent several days at the Botanic Garden at Buitenzorg; the sub-curator, Mr. Bennendyk, is a good botanist, and was very kind indeed in showing me everything. I had the opportunity of seeing the new *Rafflesia* (*Brugmansia*) *Zippelii* in spirits, and of examining fresh fruit of *Azolla* and *Salvinia*, and of studying a noble collection of Orchids and Palms. Of the latter the collection is very numerous; but though I knew sixty at Labuan, I only recognised about a dozen of them here. How many Palms exist in these wonderful countries who shall say? After seeing the garden, I made a trip into the mountains, remaining nearly a week at Ivegoe, about 4000 feet above the sea. I think, had you been with me, you would have almost gone crazy, as I did, at the Cryptogams; every tree, from leaf to branch, was covered with Mosses, *Hepaticæ*, and Lichens, to say nothing of Orchids and Ferns. No words can express the beauty of the jungle. The most productive places, however, I found to be the old coffee plantations, where the scrubby crooked trees were almost borne to the ground by the weight of parasites. Here a great epiphytal *Ficus* or *Fragræa* mounted on high, far thicker and stronger than its supporter; and there a perfect blaze of scarlet *Æschynanthus*, streaming down from the huge matted tufts of *Asplenium* or *Acrostichum*; ship-loads of *Vanda speciosa* and *odoratissima*, *Succolabia*, *Dendrobia*, *Epiphia*, any one of which would

have carried off all the prizes at Chiswick, and sent all the gardeners into fits; and in every damp hollow groves of *Dicksonias*, *Aleophila*, and *Marattia*, some rising forty or fifty feet, whose marvellous elegance and beauty, swept by the wind, neither pen nor pencil can tell. *Aroides* are in great force, and of very various forms, as are also parasitical *Rhododendra*, *Thibaudia*, and such plants. *Melastomaceae* are very prevalent here, especially the genus *Medinella*; most of them are semi-parasitic trailing plants, and hang in great masses from the trunks of the trees. But the *Mosses* and *Hepaticae* enticed me most, for these I could collect; while it was impossible, in my hurried trip, to dry other plants. Some of the pendent *Hepaticae* and *Noctera* are a foot or more long; the effect of large masses of them is most beautiful, especially intermixed as they are with long bunches of the white *Usnea*, like *U. florida*. I believe I have collected about two hundred species of *Hepaticae*, *Musci*, and *Lichens*, and the greater part of them in fruit. I shall be able, I think, to make from twenty to thirty sets of them, when I have time to open them; at present I have just dried and packed them up in a box, which it will be several months before I am able to attack: you shall receive some early specimens when I do get at them. The natives here are very capital, intelligent fellows; I had three of them with me each day, with baskets, for which I paid one rupee, or about sixteen pence, and they seemed quite delighted. They soon found out what I wanted, and I owe many of the specimens in fruit to their sharp eyes. When I found a species barren, I just showed it them and told them where I expected to find the fruit proceeding from, and they rarely failed to find it before long; they seemed, too, to identify themselves so with the matter, and showed such emulation as to who should be the first to find something new, it was quite pleasant to be with them. I might have fancied myself among botanists; these mountaineers, however, are botanists to an extent you would hardly expect amongst so-called savages. Every plant has its native name, and given upon the system of generic and specific names; for instance, when I asked a man the name of a little *Pavetta*, he said at once, "I never saw this before, and I don't know its own name, but its 'mother name' is so and so," mentioning the native generic term for *Pavetta ixora* and such plants in general. The authors of the catalogue of the Buitenzorg Garden have thought these names worth recording, and I think they are right; for I saw many plants I should not have seen, especially among the *Ericae*, but by asking for them by such names given in the catalogue; and it is wonderful, on looking these over, to find how well the system is carried out. It is of course imperfect, but remarkable for people with no written language: they do not speak Malay or Javanese, but a peculiar dialect called Sundanese. When I was tired of Ivegoe, or rather when I had spent as much time as I could afford there, I went on about twenty miles farther to Chepanas, where there is a regular European garden, to supply vegetables for the Governor's table. It was pleasant enough to see their beet and lettuces, etc.,

growing very finely. There is a pond, also, with some *Salix Babylonica*, but they look miserably, as do the European fruit-trees, though they seemed to grow pretty quickly. The Plums appear to have most of the true flavour. The Apples certainly attain the most perfect colour, and the Peaches, though they have a pretty good appearance, are said to be quite tasteless; the fact is, the trees get no rest, so as to ripen any true bearing wood. The Apples grow with long and ever-lengthening shoots, more like osiers than their brethren in Europe. At this place, which is in the midst of the plateau of the Preangu district, about 4000 feet above the level of the sea, you have quite an Italian climate, and it is cold enough at night to make a blanket pleasant. It takes its name, Chepanas or "hot-river," from a warm spring close to the Governor's house, where there is a convenient bath, very pleasant after a hard day's walking. There is a small botanic garden here also, where they have a good many Japanese plants; but the most remarkable objects are two specimens of the Norfolk Island *Araucaria*, perhaps sixty feet high, young trees, but in a state of health and vigour which promises well for the future.

From Chepanas I made my last and crowning trip to the top of the Pangernogo Mountain, about 10,500 feet. I cannot pretend to tell you all the plants I saw; but you, who have never experienced the sensation, cannot imagine how odd it was, all at once to get again among forms such as two species of *Viola*, three *Ranunculi*, three *Impatiens*, *Primula*, *Hypericum*, *Swertia*, *Convallaria*, *Vaccinium*, *Rhododendron*, *Gnaphalium*, *Polygonum*, *Digitalis* (?), *Lonicera*, *Plantago*, *Artemisia*, *Lobelia*, *Oxalis*, *Quercus*, *Taxus*, and about a dozen species of *Rubus*,—all beautiful plants. *Primula imperialis* only grows near the summit: it is a charming species, the leaves like *P. vulgaris*, with an interrupted verticillate spike, sometimes three feet high, very ornamental. Up among these plants, amid the moss which hangs on the trees in masses as big as a man's body, are two very fine parasitical Orchids, a *Dendrobium* with bright purple flowers, *D. purpureum*, and a little pseudo-bulbous plant with large flowers, like a *Cymbidium*; and yet these plants, often exposed to 36—38 deg. Fahr., we should perhaps put at home into an orchideous stove at 85 deg. Fahr. and then be surprised when they died. I was much astonished at the distribution of plants of this tribe. I have often been puzzled why I did not get more species at Labuan, and in other steamy hot places, down at the sea-level, where I believe most of the English botanists would hope to find them: whereas at about 4000 feet, at a night temperature of 45 to 50 deg., every tree is laden with them. Surely we are in the habit of "coddling them" (to use a Yorkshire word) too much in our stoves: when it is considered that a change of plan would bring these lovely and curious plants within reach of many zealous cultivators, who cannot afford the expense, it would surely be worth some nurseryman's while to try the experiment, on a large scale, of cooler houses for Orchids. I remained one night on the top of the mountain; it was exceedingly cold. I had forgotten to bring

up a thermometer, but water was frozen in a plate raised a couple of feet above the ground. There are plenty of excellent strawberries here; they have of course been planted, but, so far as fruiting is concerned, seem quite at home. I did not, however, see one stolon thrown out. They grow with scaly stems in tufts, just like *Dryas octapetala*. I saw nothing the evening I got up, as all was enveloped in a wet searching mist, but in the morning I was amply repaid for my trouble. The summit of the mountain, evidently an extinct volcano, is a sort of amphitheatre, about 500 yards in diameter, broken through on one side by a deep narrow ravine. This space has been cleared, and is chiefly covered with strawberries; for the apples and other European trees planted there are so covered with foliaceous Lichens, that they can hardly vegetate. The forest of crooked stunted shrubs, chiefly Ericaceous, extends to the very verge of this amphitheatre outside. At sunrise I climbed up to the ridge, and for half an hour had an uninterrupted view. I could see the sea to the north and south of Java, and in the distance, to the south-east, chain upon chain of mountains, ending at the sea, with the smoking summit of Janykuban-prahu, which has, within a few years, been very active. A heavy haze hung over Bulana, so that I could not see it; but nearer to me, on both sides, I looked over miles of cultivated country; the system of *sawah*, or wet rice cultivation making the country look half lakes and rivers. Nearer to the north-west, within about thirty miles, rose the jagged peak of the Salac, one of the best botanical mountains in Java, now all green and still, though some seventy years ago it committed fearful havoc, and destroyed many lives; and to the south, almost under my feet, gaped the white barren crater of Gédé, another peak of the mountain on which I stood—a slight smoke rising out of the unfathomable depths, to testify that, though slumbering, the fire king was not yet dead. You cannot conceive anything more sublime than the bare walls of lava and the banks of white pumice, furrowed by the rains into deep ravines, and the wreaths of blue smoke curling up in the sunrise, with the dark primeval forest creeping up in places to the very edge of the abyss, or with countless dead grey branches silently attesting how different the scene may sometimes be. If you add to this the huge masses of boiling clouds rolling over the flanks of the mountain, now hanging at the very edge of the crater, and then sweeping rapidly down to the plains, the strange ashy aspect of the nearest trees, covered with pale Lichens, and the bright blue tropical sky and rising sun, you may perhaps imagine something of a scene which I can neither describe nor forget. I felt inclined to shout for joy, and I never even thought of the cold, until I tried to sketch, and found my hands so numb I could not hold a pencil. I did manage, however, to get an outline of the water. Coming down again was harder work than climbing up, and played the very deuce with my knees; but nevertheless, when I met Bennendyk half-way up, I was glad enough to turn back with him. We took a short walk that afternoon to see a thicket of *Rhododendron Japonicum* in flower. The

plant is now, I believe, in England; and if it grows as it does here it is almost the finest plant in the gardens; its beautiful flame-coloured blossoms are in great bunches of twenty or more, and the colour is more dazzling than of any flower I know. I saw also two other *Rhododendra* (*R. rubriflorum*, a beautiful scarlet, and *R. album*) in perfection, both very free bloomers and very beautiful plants.

That night we remained in a small house on the mountains, and the next day we went up another peak, and also to see some cataracts; of these there were three, falling at the head of a gorge over a cliff, about a hundred and fifty feet high. There was a fine supply of water, but in time of rain it must be immense, judging from the quantity of stones and timber heaped below. The rocks covered with *Bartramia fontana*, a white *Sphagnum*, and a deep red Hepaticous plant, and with great patches of the broad leaves of the *Gunnera*, and a dark green Urticaceous plant, which seemed to rejoice in the spray and foam. Large bushes of *Acacia volcanica*, and a tall *Saccharum*, were scattered among damp stones covered with Mosses and *Hepaticæ*. I gathered a curious *Gyrophora* in fruit, on a dead fern trunk. The white *Sphagnum* I mentioned as abundant here, I saw in the course of a single stream only, which rose in a hot-water spring half-way up, where it was very abundant. Coming back I found a curious plant, *Campanumea Javanica*, a sort of climbing Campanula, with greenish flowers, veined like the henbane, and black pulpy fruit; it is a pretty plant. The enormous size of the leaves of the under growth of these dells gives a most peculiar character. *Gunnera*, *Caladium*, and *Musa* occupy large spaces, and are eminently social plants. I had this day the pleasure of seeing a Rhizantheous plant alive; it is a species of *Balanophora*, and grows nearly under ground, on the root of a *Cissus*. The thalus, or whatever you may call it, is slightly branched, fleshy, and glutinous, and is sought for by the natives, who dry and burn it for torches. Coming down, I had the pleasure of assisting in making the first plantation of Cinchona in Java, consisting of several hundred plants, which Bennendyk had come to plant half-way up the mountain. They are of the *C. calisaya*, known to produce the "yellow bark," the most precious of all the Cinchonas.—*James Mottley, Esq., in Hooker's Journal of Botany.*

POINSETTIA PULCHERRIMA.

BY A PRACTICAL CULTIVATOR.

DURING winter and spring the gay and brilliant crimson and scarlet bracts of this elegant plant are highly ornamental; many of their large heads are to be seen adorning the shops in the Arcade at Covent Garden, from whence they are quickly transferred by purchasers to the windows, drawing-rooms, banqueting tables, and ball-rooms. It merits a place in every collection of winter flowering plants. It is

easily cultivated, and grows freely. The best method of propagation is by *single eyes* (as is done with vines), taken from the hard, well-ripened wood of last year, inserting them in *very sandy peat*, plunging the pot in gentle bottom heat, as a cucumber bed, and when rooted potting them singly, still retaining them in the frame till well established, then removing them into a medium stove, placing them *near the glass*. From the end of June to the beginning of September the plants should be kept in the greenhouse, and then be removed into the stove; being duly watered and otherwise attended to, they soon push forth their elegant crowning heads. The plant is rather liable to the attack of red spider, therefore the under sides of the leaves require to be occasionally and forcibly syringed; but after the bracts begin to colour syringing must cease, as the water would damage the flowers. Old cuttings in plants do not produce such fine heads as young ones do, it is best to strike some every year. The plant requires to have a very liberal drainage, and flourishes in equal parts of light loam, peat, and *old well-rotted* manure or leaf-mould.

CULTIVATION OF ANNUAL FLOWERS.

BY A NOBLEMAN'S FLOWER GARDENER.

OBSERVING in a recent number of the FLORICULTURAL CABINET that information on the best annual flowers and mode of management is solicited, I forward the following plain particulars on the subject, which I hope will be of some service to the inquirer, as well as to enable the villa proprietor, cottager, and small garden occupier to cultivate, for their own recreation and enjoyment, the *Popular Annuals*—a tribe of flowers surpassed by no others in the vegetable kingdom for fragrance, diversity of form, or beauty and variety of colouring; properties which are enhanced by the facility with which they may be grown, and the speedy return they yield to the careful cultivator, for while they may be procured for a trifling amount, they at the same time require less attention than their more permanent congenitors. Instead of waiting seasons, the owner is rewarded for the little requisite attention bestowed on them, in a few weeks; a period not only short, but rendered still more so by the pleasure experienced in daily beholding and contemplating their rapid progress, from the time their embryo leaves first appear, to that stage of existence when the profusion and loveliness of their bloom is sufficient to arrest the attention and call forth the admiration of the most careless observer of nature's beauties.

From those resident in and near large towns the annual flowers have a double claim to attention; for while they serve in summer to cover the small street-door parterre, and garnish the window-box and flower-pot with the most choice embellishments of the flower-garden, in winter the management necessary for perennials is dis-

pensed with, which in such localities is peculiarly unpleasant, and the gloomy association of ideas is avoided consequent on daily beholding, in the herbaceous tuft of sickly leaves or withered flower-stalks, and the foliage-stripped branches of the deciduous, or the smoke-blackened leaves of the evergreen shrub, the decay of what once charmed the eye of the beholder.

In addition to the annual flowers, strictly so called, "which bloom and die in one short summer's space," there is another class of plants which annually compensate, by the beauty and delicacy of their bloom, the care necessarily bestowed on them by those who have in their gardens a small hot-bed frame or greenhouse, in propagating them in autumn, preserving them through winter, and re-transplanting them in May, again to embellish the flower-beds with borrowed brilliancy of warmer climes and clearer skies. To assist in the selection of these, I shall add a descriptive list of the most interesting and beautiful.

Culture of Annuals. In the course of my remarks I shall give some short directions for the culture of such as require any particular mode of treatment, but I consider the following general observations necessary for the guidance of the less experienced amateur.

The most *natural period* of sowing Annuals is in the latter end of autumn, when they, as well as most other plants, burst from their capsules, and distribute the seeds in various ways; therefore, those that are *natives of this country*, or *similar climates*, may in part be sown at that period, either in pots to be kept in a cold frame during winter, and turned out into the beds in spring, or sown in the open ground, for forming an early bloom in the following summer, to be succeeded by the part reserved for spring sowing, which is the period most usually devoted to that purpose. From the end of February to the beginning of May flower-seeds may be sown, whenever the weather is favourable, and the ground in a proper state for that purpose; reserving the more tender sorts till about the middle of April.

The depth of soil used as covering for the seeds should, in all cases, be apportioned to their size; for instance, Lupines, Sweet Peas, and similar large seeds, should be buried two or three inches under the surface; while Prince's Feather, Mimulus, Poppy, Tobacco, etc., of which the seeds are very small, should not be covered by more than a small layer of earth. It should further be kept in view, that seeds generally, and in particular those of a small size, vegetate more freely in a light than in a heavy and tenacious soil; therefore, in cases where the former does not naturally exist, cultivators will find their additional toil amply repaid by procuring and only using light soil for covering the flower-seeds.

The manner of sowing varies according to the taste of the operator: the practice formerly adopted, and still often followed by gardeners and others, is to form with the fingers, in the previously prepared ground, a circle from half a foot to three feet in diameter; and of the

proper depth, in which the seeds are deposited, and the earth again returned; the whole being generally finished by clapping the surface gently with the back of a spade, or pressing the earth lightly with the foot, to assist in keeping out the drought; of course, the same practice of forming the reservoir for the seeds may be adopted whether the figure is intended to be a circle, a square, or any other form.

Some fanciful growers form the letters of their name, outlines of animals, etc., in their flower-beds, generally choosing for such purpose plants that possess a dwarf or compact habit of growth.

The young Annuals, as well as other plants, when coming above ground, are liable to be destroyed by slugs and various insects, as well as injured, particularly the less hardy sorts, by the night frosts; to prevent which, various methods are recommended and practised. In small gardens a very excellent plan is to sow the seeds in circles, not more than six inches in diameter, and inverting a flower-pot or tile; when the young plants appear above ground the covers must be gently raised on one side by means of a small wedge or stone, which should always be removed in the evening, the operator taking care to lift them to see that no enemies are enclosed. The covers answer the double purpose of protecting the young plants and of retaining the moisture about them until they acquire sufficient strength to resist all such injuries. Lime-water, applied at any time, proves destructive to slugs, but if sprinkled on the leaves during dry weather or hot sun it will injure them; therefore that expedient should only be resorted to in the evenings or during damp weather, when they have left their retreats. A sprinkling of quick-lime in the same manner is productive of the same effect, but always produces a disagreeable and unsightly appearance." (*For list, see Wrapper, p. 2.*)

WINTER MANAGEMENT OF HOT-HOUSE PLANTS.

BY A LONDON NURSERY PRACTITIONER.

ALL plants are naturally subject, in a certain extent, to the vicissitudes of winter, spring, and summer. It follows therefore that, in a state of cultivation, something analogous should be followed by the cultivator in imitation of those changes. To keep tropical plants at a high temperature during winter, when there is little sunshine, is to excite their growing principle at a period when they should rather be at rest; and where such a practice is followed, the plants become drawn up, weak and leafless, in consequence of the perpetual, or, we may say in this instance, unnatural, stimulus to excitement which the application of heat produces. It appears, from practice and observation, that the temperature of the plant stove should be kept as near as possible from 60 to 65 degrees during the dark days of winter, for all that is then required is to prevent the plants from being checked or chilled by cold during that season; so that,

as spring naturally comes on, a further but gradual stimulus may be given them by additional heat, and more particularly during the day.

when to withhold it. It is (as we have repeatedly observed) one of those cases in horticulture for which rules may be laid down, but not wholly without exceptions, and must entirely rest on the judgment of the cultivator. Steaming the stove during winter is a material feature in the best management of such plants, and should be scrupulously attended to, both to soften the atmosphere of the house, as well as to prevent the increase of insects, particularly the red spider, which is sure to make its unwelcome appearance in a high and dry atmosphere. The most eligible time for steaming the house is in the evening, when the flues are hottest, and it is performed by pouring water on them, which generates steam readily. In time of severe frost, this operation may be performed during the day, or dispensed with for a few days altogether. The quantity of water required to produce a sufficiency of steam depends on a variety of local circumstances, such as the size of the house, the way in which the water is put on the flues, etc.; but it may be safely asserted, that more than is necessary is often used when it is poured on them at random, or done in too hurried a manner. In steaming all sorts of hot-houses, as well as in their whole management, it can only be expected to be well done when the operator feels an interest or pleasure in doing it. A few minutes more spent in applying it regularly and leisurely over the whole surface of the flues will do more good than sluicing a hogshead of water over the house in a careless manner. During the winter months very little ventilation is required in these structures; for, unless the house be unusually well glazed, and in complete repair, a sufficiency of fresh air will find its way into it between the laps of the glass and other openings: indeed, greater care should be had to the exclusion of cold air during winter than to its admission. The plants are, for the most part (as observed above), in an inactive state, and therefore not in want of those gases which

compose certain parts of atmospherical air, and which are found so necessary for them when in a growing state.

NOTES ON NEW AND SELECT PLANTS.

38. *PENTAS CARNEA*, var. *rosea*. Nat. Ord. *Rubiaceæ*.—A superior variety of the much-esteemed *P. carnea*. The corymbs of flowers being of a more decided colour, lavender-pink; the growth is also much freer. This plant will be found to be a very beautiful ornament to our stoves, from its flowering freely and continuing in bloom for a length of time. (*Flor. des Serres*, 978.)

39. *LYCHNIS GRANDIFLORA*. Nat. Ord. *Caryophyllææ*. Syn. *L. coronata*.—A well-known old favourite of our gardens, first mentioned by the German traveller Kempfer, in his *Amenitates Academicæ*, published in 1712; also a figure of it was given in the *Botanical Magazine* in 1793, under the name of *L. coronata*, a name given to it by Thunberg, but has not been generally adopted. It is a native of Japan, where it flowers in the months of May and June, but with us it blooms in the autumn. Its large flowers of a bright orange-red render it very attractive, and well deserving of the little attention it requires. (*Flor. des Serres*, 972.)

40. *APHELANDRA VARIEGATA*. Nat. Ord. *Acanthaceæ*.—A very ornamental species, a native of Brazil, therefore requiring stove culture. The flowers are yellow, produced in a long, narrow, terminal spike, six to eight inches in length, the bracts of which are brilliant orange, contrasting finely with the large rich foliage. (*Flor. des Serres*, 981.)

41. *APHELANDRA PORTEANA*. Nat. Ord. *Acanthaceæ*.—Another Brazilian introduction, discovered by M. Morel de St. Mandé, in the province of Bahia, in 1846. In habit and foliage it is somewhat similar to the last-named species. The leaves are blotched along the midrib with white. The terminal spike of flowers is shorter and thicker than the afore-mentioned, but the same in colour. The genus *Aphelandra* is exclusively American. The culture same as the preceding. (*Flor. des Serres*, 984.)

42. *LYSIMACHIA LESCHENAULTII*. Nat. Ord. *Primulaceæ*.—First discovered by M. Leschenault, on the Neilgherries, in Malabar. We do not know when this plant arrived in our gardens. A very abundant-flowering herbaceous plant, continuing long in bloom. The flowers are bright rosy pink, with small dark spots at the extremity of each petal; they are produced in short terminal spikes, towards the end of July. It is a decided acquisition to our borders, and we doubt not it will soon be as extensively cultivated as it deserves. (*Flor. des Serres*, 982.)

43. *VIOLA CAPILLARIS*. Nat. Ord. *Violaceæ*. Syn. *V. stipularis*.—This lovely little plant sprang up amongst the soil sent with some plants from Chili, and flourishes abundantly in the orangery at the

44. *THYRSACANTHUS BARLERIODES*. Nat. Ord. *Acanthaceæ*.—A fine stove plant from Minas Geraes, in Brazil. The flowers are of a crimson-red, forming elongated thyrses; each flower is tubular, erect, *Justicia*-like, and about two inches long. The foliage is large, lanceolate. (*Flor. des Serres*, 986.)

45. *PAPHINIA CRISTATA*. Nat. Ord. *Orchideæ*. Syn. *Maxillaria cristata*.—Mr. Purdie sent this curious and really beautiful Orchid from Trinidad, in the West Indies. It blossomed in August. The sepals and petals are alike in form, but the latter are rather smaller; the ground is white, variously blotched, striped and spotted with a rich mulberry-brown; the lip is very curious in shape, and is almost entirely of a deep chocolate-purple; the column is a greenish-yellow, with small blotches of chocolate near the base. The flowers measure four to five inches across the sepals. The leaves are lanceolate, four to six inches long. (*Bot. Mag.*, 4836.)

46. *BROWNEA GRANDICEPS*. Nat. Ord. *Leguminosæ*.—There are seven or eight species in this genus of plants, which have been described. This species inhabits the mountain woods of Caracas, Cumana, Caripe, and La Victoria, and is named by the inhabitants "Rosa del Monte," or "Palo de Cruz." The flowers are not so brilliant in colour as in *B. coccinea*, but the heads are much larger, being about eight inches across, and the number of individual flowers in each are much increased. Dr. Lindley observed a very singular peculiarity in this shrub. "The brilliant head (of flowers) appeared on the side of the main stem, among the leaves, which at that time presented a singular phenomenon. Every evening they rose up and lifted themselves from the blossoms to expose them to the dew, so that each morning these beautiful objects were uncovered; but as the day advanced, the leaves gradually drooped, and bent down over the flowers to guard them from the rays of the sun." In its native country it attains to a small tree, the branches of which are stout and pubescent. The flowers form a noble, pendent, globose head, somewhat of the appearance of a *Rhododendron*; each blossom is about an inch and a half across, rosy carmine, white stamens and yellow anthers. The leaves are about a foot in length. It is a noble species, and well worth cultivation in the conservatory. (*Bot. Mag.*, 4839.)

47. *ABUTILON INSIGNE*. Nat. Ord. *Malvaceæ*.—This handsome flowering species was noticed by us two or three years ago, when it first bloomed on the Continent; it has now, however, flowered in the collection at Kew Gardens. The ground of the flowers is white, but

it is almost entirely covered with the numerous rich carmine veins or the reticulation, on both sides of the petals, It blooms profusely, and at a time of the year when flowers in our conservatories are most welcome; it is in perfection in the months of January and February; it also has the advantage of blooming when the plants are not more than two feet high. We are indebted to Mr. Linden, of Brussels, for its introduction to Europe from New Granada. (*Bot. Mag.*, 4840.)

REVIEW.

THE CHINESE POTATO (*Dioscorea Batatas*) AND *HOLCUS SACCHARATUS*.

THIS is the title of a new pamphlet by Mr. John Henderson, formerly of the well-known firm in Pine Apple Place, London, intended to describe the nature of the plants whose names are given on the title-page. The interest which has been awakened in many circles, touching the *Dioscorea*, fully justifies the publication of a pamphlet descriptive of its nature and properties, whilst the importance that attaches to the *Holcus*, in the present deficiency of material for paper manufacture, makes it an admirable appendix to the main subject of the pamphlet. We congratulate Mr. Henderson upon the manner in which he has executed his task. His pamphlet is just such a business man should send forth. There is no aim at fine writing—no attempt to make out a case; or, in plain terms, to throw dust in other people's eyes, and make them believe that there never were such plants on the face of the earth as those which he is now introducing to the notice of the public. He simply details facts, and upon those facts bases his conclusions, and those conclusions supported as they are by statistics will, we think, be gainsaid by few. In his preface Mr. Henderson states all this with a modesty that does him credit, and casts away from him all idea of exaggerating the qualities of the plants, truly observing that "such a course serves the cause neither of science nor of commerce. Whatever I may advance in favour of the *Dioscorea* or the *Holcus saccharatus* will be based upon facts, the results of the most careful experiments, conducted with the utmost skill and accuracy." Viewed in this light we do not hesitate to say that Mr. Henderson's pamphlet has a claim of no ordinary character upon all who are interested (and who is not?) in the progress of agriculture and agricultural science, and that none will be prepared to pronounce upon the merits of the *Dioscorea* and *Holcus* who have not first made themselves masters of the facts which Mr. Henderson's statements lay before them.

We have, in fact, here a complete detail of the experiments of Professor Descaisne, conducted in order to try the real merits of the *Dioscorea*, from which we learn that it is, in the Professor's opinion, superior in flavour to the potato, more productive, and can be kept longer. As regards the *Holcus*, we are astounded to find that, after

the saccharine matter, which can be used for the production of either alcohol or cider, has been extracted, a large remuneration can be obtained for the fibre, which can be applied with success to paper manufacture. The results as given in the pamphlet are of a most wonderful character, and such as cannot fail to induce many to cultivate a plant which pays so well, and costs so little trouble.

We heartily thank Mr. Henderson for his pamphlet, and commend it without hesitation to the attention of all our readers, who should, we venture to add, peruse it before the season for turning its information to use has passed away.

SELECT AND NEW FLOWERS, CONTINUED.

WILLIAMS'S EVERGREEN CLIMBING ROSE.—A hardy *Ayrshire Rose* was impregnated with a Yellow Tea-scented China Rose, and this handsome hybrid was raised. It has the growth of the *Ayrshire*, and the beautifully formed buds of the Yellow China. The flowers are cream coloured, very fragrant.

RHODODENDRON CILIATUM.—We figured this charming Himalayan plant, one of Dr. Hooker's discoveries. It is now in beautiful bloom in a cool greenhouse, at Kew. The flowers are blush-white, with striking brown anthers, six or seven blossoms on each head. Each flower is about three inches across; very handsome.

HARDY CHRISTMAS ROSES IN BLOOM IN THE FLOWER-GARDEN AT KEW.—*Helleborus dumetorum*. Flowers about two inches across, of a pale yellow and green. *H. latus*, an inch and a half across, deep green. *H. fetidus*, an inch and a half across, purplish-blue. *H. purpurescens*, two inches across, a dull purple, having white anthers. *H. atrorubens*, two inches across, rich purple and white anthers; very pretty. *H. olympicus*, three inches across, blush and white, with green anthers; very pretty. *H. viridis*, two inches across, pale green. *H. rubescens*, two inches across, a free bloomer, purple-crimson, with white anthers. Flowers not quite so deep in colour as *atrorubens*. *H. niger*, three inches across, blush-white, tinged with green. They are very pretty winter and spring ornaments for the flower-border, particularly grown near the dwelling-house or frequented walk.

PRIMULA SINENSIS.—In the greenhouse is a pretty variety, having flowers white slightly tinged with purple.

INDIAN AZALEAS.—*Beauty of Europe*, pink striped with carmine, very distinct. *Vittata*, white striped with purple, like a carnation; very handsome. *Symmetry*, salmon-pink, spotted with crimson, finest formed flower; very handsome. *Louis Napoleon*, rich crimson-violet, double; fine. *Striata-formosissima*, white with pink flakes: fine form. *Admiration*, pure white with flakes of deep carmine; fine. *The Bride*, pure white, glossy, and of thick substance; handsome. *Criterion*, pretty pink edged with white, and sometimes striped with purple-crimson; good form. *Gem*, deep salmon colour; superb form and substance. *Robinsoni*, vermilion-scarlet, fine form, and thick substance.

MISCELLANEOUS.

HORTICULTURAL SOCIETY'S MEETING, HELD AT REGENT STREET, MARCH 6TH.—The attendance of visitors was more numerous than even the crowded one held in February, and the display of plants, fruits, and forced vegetables was both enormous and superb.

The *Chinese Primroses* were in profusion. Very fine specimens of the *Magnum Bonum* variety, the flowers of which are very large, a rich velvet-crimson with fringed margin, were conspicuous. The variety named *Bride*, a French-white colour, was very pretty. These formed a good contrast with the rosy red, white, and purple of others. The best collection was shown by Mr. Smith, of Little Blake Hall, Hampstead.

Cyclamens.—Messrs. Henderson, of Wellington Road, had a fine collection, viz., *Atkinsi*, *persicum*, *persicum alba*, *persicum rubrum*, *persicum carneum*, *persicum roseum*, *repandum*, *vernum*, and others. The varieties of *persicum* were very handsome.

Messrs. Henderson, of Pine Apple Place, sent a nice collection of *Acacias*; *diffusa*, *grandis*, *lineata*, *pulchella*, *longifolia*, *Drummondii*, were the best.

Mr. Veitch exhibited a beautiful bushy shrub of *Rhododendron jasmiflorum*, the Jasmine flowered. We figured this most charming species a short time back. The appearance of the plant is somewhat like *Escallonia macrantha*; it had sixteen terminal heads of its pure white, waxy-like flowers. Each head had about a dozen blossoms; tube three inches long, with the face end the size of a well-formed thick-petalled Jasmine flower. It is exceedingly neat and pretty, and ought to be in every greenhouse. *Thysacanthus rutilans*, the flowers are similar in form to the *Justicias*, borne in large clustered heads, of a scarlet-crimson colour. It ought to be grown in every stove, and would, by due attention, form one of the most ornamental climbers, either coiled round a wire trellis, pillar, or under a rafter. It is a profuse bloomer.

Amongst *Epacris*es, the *Hyacinthiflora* and *Hyacinthiflora candidissima* were most admired.

Cinerarias.—The best *blue* was *Lord Palmerston*; best light, *Queen of Beauties*, white, with dark disc. *Picturata*, pure white, and lavender disc; superb form. *Rosalind*, white tipped with purple, grey disc; fine form. *Prince Arthur*, fine scarlet-crimson; brilliant flower. *Styphelia tubiflora*, the flowers and plant are *Epacris*-like, white and carmine, an inch long, in spikes. It is apt to become naked; but Messrs. Lee's plant had been formed, by stopping, to a beautiful *bush*, and in profuse bloom; very pretty.

Orchids.—There were some very superb-blooming plants. *Dendrobium speciosum*, having about twenty large spikes of sulphur-white flowers. *Dendrobium nobile*, shown by Mr. Hammerton, was an extraordinary plant, far surpassing in size and beauty all others we have seen. *Phaiis grandiflorus*, by Mr. Forsyth, had fourteen spikes of its lovely flowers. Besides a number of others of less note.

There was a square cake of *compressed vegetables*, which weighed six pounds; the process of forming it thus has been conducted by the firm of Chollet and Co., of Paris, according to the detail of Masson's Patent. Carrots, leeks, onions, turnips, cabbages, potatoes, and other vegetables are first partially dried, then mixed and compressed into cakes. The *six pounds* cake, it was stated, would be sufficient to sauce a full dinner for 120 persons. A vast amount of it has recently been sent to the Crimea.

MANAGEMENT OF FUCHSIAS.—Last season I was much pleased with a superb collection of Fuchsias, which was exhibited at the Metropolitan Horticultural shows, grown most admirably, and the plants were in the *pyramidal style*, from four to six feet high, and broad in proportion, tapering upwards. The clever and generous cultivator of them has favoured an *amateur* with the following particulars of his mode of management. Plants, to bloom profusely at the *early part* of the summer in 1856, must be struck in the spring of the year 1855, and be duly potted and repotted, in order to have the plants as large as possible by the autumn. The leading (main) stem must be trained erect, and as it proceeds, it generally will push a sufficiency of *side shoots*; but if it fails in its progress, then stop the lead just above the vacancy, to cause the production of some. The side shoots are secured evenly outwards to form the branches, and to have those of about the same age, to extend nearly to the same length, they are tied to horizontal green-painted sticks. If any side shoot grows too vigorous, and robs its neighbours, the end is nipped off, and the branch tied in a downward direction, to check the extra vigour, and be loosened afterwards in due course. These plants are kept, trained, etc., in the airy part of a greenhouse during summer, and the last week in August they are placed out of doors in a sunny situation, to cause the shoots to become consolidated, and be *well hardened* before taken into winter quarters. During winter the plants are kept in a cool but dry greenhouse, and water is only supplied to have the soil barely moist during the winter rest. According to the period I want the plants to be in profuse bloom, so I start them into growth in spring. I allow the *new shoots* to push half an inch, and then turn the plant out of its pot, carefully take away a portion of the soil outside of the ball, and repot into large pots, from twelve to eighteen inches across the top. The compost is equal parts of good, fresh, turfy loam (six months old, as it is said) old, dry, rotten, hot-bed dung, and sandy peat, with bits of bone and charcoal, all well mixed, but not sifted. The new shoots are thinned, so as to leave a due portion for a profusion of flowers, as every shoot of a Fuchsia will bear blossoms, if rightly grown. For show in a greenhouse, all the blossoms are retained, and, literally, they almost smother the plant with flowers. When I want *large* blossoms rather than a profusion, for *exhibition* plants, I duly thin the flowers. Soft water, and once a week liquid manure, is liberally given during the growing period. I have a very free drainage in the pots. To promote the vigorous pushing and growth of the *new shoots*, I plunge

the pots in a gentle hot-bed, in a double-roofed pit; it greatly benefits the growth. Less-sized specimens, of course, can be had the *first* season after cuttings are struck, but they do not bloom so fully till *late* in summer and autumn. The *early* spring and summer's bloom can only be had from plants raised and trained the previous year. Nothing can surpass in elegant and graceful beauty a properly trained *pyramidal*-shaped plant in profuse bloom. The branches do not require horizontal supports after the first season's formation.

THE SEA WEEDS OF AUSTRALIA.—I went to Rottnest Island, and spent six weeks exploring its reefs, and left them not half exhausted. Unfortunately the reefs are only accessible at new and full moon, and low water at this season is after sunset, so that I could only have hasty wadings in the evenings, often driven away by darkness. Nevertheless I greatly increased my number of species, and dried a large box of specimens. Since my return to the Sound, I took advantage of wet and stormy days (and a fit of the gout!) to examine all my West Australian *Algæ*, naming and describing the new species. The result is that I have collected 352 species (besides *Sargassa* and *Cystophoræ*, not examined), and mark 140 species as new. Among them are six new genera, all well characterised. There is no very wonderful structure among the novelties—no new genus of *net-work*. I did not myself find *Claudea*, but it was twice found in small quantity by Mr. George Clifton, while I was at Fremantle. He is a disciple of mine and an ardent collector, from whom I hope much in future. My *Martensia Brunonis*, which I sent you, I have since reduced to *M. elegans*, the African one. The whole number of *net-work Algæ* which I have found is nine, of which four are new species. Beside these I found a beautiful new *Kallymenia*, as big as two large cabbage-leaves, joined at the base, of a red-rose colour, and regularly pierced all over, like an *Agarum*, with round holes. I have only two perfect specimens, one of which is intended for you. Mr. Sanford gave me, from Champion Bay, a superb new *green-lace Alga* (*Struvea macrophylla*, MS.), sent by Mr. Drummond's daughter-in-law. I fear you do not remember the genus, which is described in Pl. Preiss., and of which you have the original species; but the new one has a stem supporting an oval crenated *net-work*, five inches long by three wide, resembling (it is bleached) an elegant structure of old point-lace—just what you might see on a Vandyke collar. I have only a single specimen. I am preparing a memoir of these *Algæ*, which I shall send home to be read at the Royal Irish Academy, and printed in their current proceedings, with a view to a larger and fuller memoir, with plates, in their Transactions, after my return home. The number of duplicates collected in West Australia is about 1600; not bad work either, considering I had no assistants, and frequently had to carry my day's collections five or six miles under an Australian sun.—*Dr. Harvey, in Hooker's Journal of Botany.*

MOUTHS OF PLANTS.—All manure must not only only be rendered liquid, but also be as thin as water, before it can be sucked up by the spongelets; and hence even the drainings of stables and dunghills,

which are very rich in nourishment for plants, are too rich, that is, too thick to pass the small openings, till they are largely mixed with water, without which they will choke the crops instead of feeding them. When the leaves become yellow from this cause, they are usually said to be burnt by the heat of the manure. In the same way, the finest sort or the finest powdered lime, bones, or shells cannot, till dissolved in water, get through the spongelets into any plant. It is on this account that, in transplanting, the tips of the root-fibres are pressed and obstructed by the earth of their new situation, and are therefore unable to feed till they can place themselves in similar freedom in the earth as they *had* before transplanting. When they are bent or obstructed in this way, their growth is also prevented, and new fibres spring from other parts of the root, out of the materials which would otherwise have enlarged the old fibres. Plants thus acquire a greater number of mouths, the oftener they are transplanted, a circumstance usually acted on by nurserymen, who shift their young trees and other plants, for the purpose of multiplying their root-fibres, and consequently of strengthening the plants, by giving them a greater facility of feeding, from having more mouths to feed with. Every removal, however, must tend to obstruct or injure the root-tips, and of course check the growth, by preventing them from feeding. But by lifting plants with balls of earth, so as not to disturb the root-fibres, or by taking great care not to injure these, and at the same time spreading them carefully out by hand in their new situation, the plants are greatly benefited by it.

OBITUARY.—We regret to announce the death of M. C. J. B. DE MIRBEL, ex-Professor and Administrator of the Jardin des Plantes, at Paris, until 1850. He died at Champperret, near Neuilly, on the 13th of September last.

We regret also to announce the decease of Dr. G. W. BRISCHOFF, Professor of Botany, and Director of the Botanic Garden of the University of Heidelberg, who died on the 11th of September, 1854. He was born at Durkheim, in 1797.

BRIEF REMARKS, &c.

THE HELLEBORE AND CROCUS.—When we see the *Helleborus fœtidus* and the *H. niger* blowing at Christmas, the *H. hyemalis* in January, and the *H. viridis* as soon as ever it emerges out of the ground, we do not wonder, because they are kindred plants, which we expect should keep pace the one with the other. But other congenerous vegetables differ so widely in their time of flowering, that we cannot but admire. I shall only instance at present the *Crocus sativus*, the vernal and the autumnal crocus, which have such an affinity that the best botanists only make them varieties of the same genus, of which there is only one species, not being able to discover any difference in the corolla or in the internal structure. Yet the *vernal crocus* expands its flowers by the beginning of March at farthest, and often in very rigorous weather, and cannot be retarded but by some violence offered; while the *autumnal crocus* (the *Saffron*) defies the influence of the spring and summer, and will not blow till most plants begin to fade and run to seed. This circumstance is one of the wonders of the creation, little noticed, because a common occurrence; yet it ought not to be overlooked on account of its being

familiar, since it would be as difficult to be explained as the most stupendous phenomena of nature.—*White's Natural History of Selborne.*

CAMELLIAS.—They flourish best when grown in good turfy loam that has been laid in a heap for a few months, and broken by the hand at the time of potting; add to it one-fourth of its quantity of old well-rotted cow-dung, with a sprinkling of bits of charcoal. Also have a liberal drainage of broken pot upon it, and a thin portion of moss to prevent the soil being washed among the drainage. Avoid giving too large a pot; but endeavour to encourage a numerous production of roots, which are the principal feeders to the plant, and in watering give alternately soft water and liquid manure,—an ounce of the best guano and a handful of soot to one gallon of soft water. With other due attention in allowing them abundance of air, except at the time of pushing the new shoots, when they must have extra warmth till the growth is completed; then give air freely to promote the formation of strong flower-buds. With this attention the plants will have a rich green fine foliage, and the flowers will be extra large and rich in colours.—*Miss Moore.*

CAUSE OF COLOURING IN PLANTS.—There is perhaps no subject of more interest than the cause of colouring in plants; it is one upon which till lately no very definite notions were possessed; but it has at length attracted the attention of the skilful vegetable chemists of Geneva, and the phenomena relating to it are daily becoming more and more intelligible. It appears that the opinion long since expressed by Lamarck, that when leaves and fruits acquire their autumnal colouring they are in a morbid condition, and that flowers are, from their birth, in a state analogous to that of leaves in decay, is very near the truth. Taking the green colour so prevalent, and so frequently exclusive in vegetation, as the fundamental colour of plants, it appears that deviations from it are chiefly caused by their chromule being combined with oxygen in different degrees. When leaves are green, they absorb oxygen at night, and part with it by day; but just before they change their colour, they cease to part with this gas, continuing, however, to absorb it at night. Hence it has been inferred by Mr. Macaire, that oxygenation takes place, which in the first instance discharges the blue and leaves the yellow, and next produces red; for in all cases red is preceded by yellow in leaves which change their hue. It is supposed that other colours may be caused by alkaline matter, or peculiar vegetable acids, being present, and that in what are called white flowers, the chromule is only in an imperfect condition; as apparent evidences of which, De Candolle points out, first, the analogy of the colour with that of blanched plants; second, the much greater proportion of white flowers in northern than in equatorial countries; and, thirdly, the well-known fact that many flowers which are at first white become coloured afterwards.

TO DESTROY INSECTS.—*Woodlice, Crickets, and Black Beetles.*—Take one pound of oatmeal and half a pound of coarse brown sugar; mix them, and add two ounces of pepper, ground fine. Lay it upon pieces of pot, where the insects frequent.

Slugs, etc.—Take cabbage-leaves and hold them before the fire till they are soft, then rub them with fresh butter or dripping, lay them in places infested with slugs, and when the leaves are infested with them, destroy them as you think well. Woodlice and earwigs are attracted by the same.

Black and Green Fly.—Take yellow clay, and work it in a tub of water till it becomes of the consistence of paint; put some of it in a pan, and dip the parts of the branches that are infested in it, and it will effectually destroy the insects for that season; or, make thin *sizing*, in which dip the shoots; this latter is excellent for rose trees when attacked.

The Scale on Pines has been destroyed by the same mixture.

Aphis lanigera, or American Blight on Fruit-trees.—To every six gallons of the above clay and water add two pounds of cream of tartar, one pound of soft soap, and half a peck of lime; mix it, and in dry weather wash it over the infested trees, with a large brush, previous to the trees pushing in spring, then sprinkle them over with quick-lime.

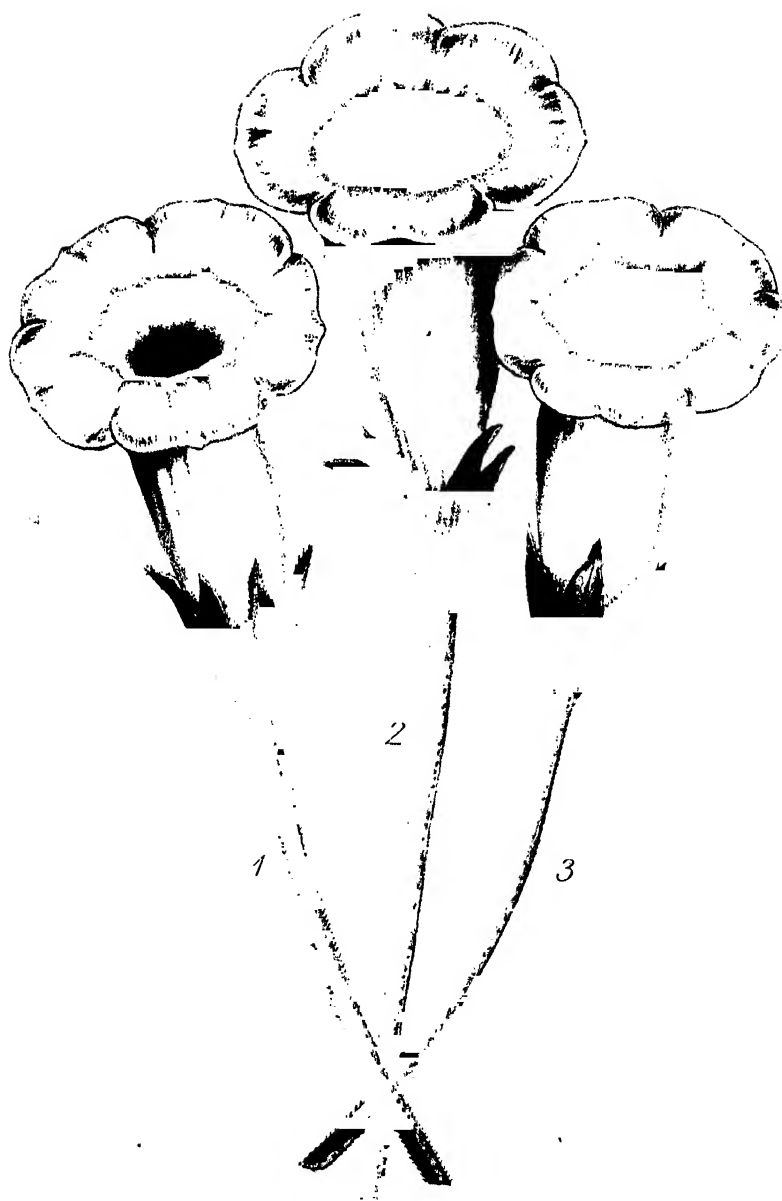
Flies and Wasps.—Pepper, sugar, and water will effectually destroy these insects.

FLORAL OPERATIONS FOR APRIL.

FLOWER GARDEN.—Let the previously prepared plan of beds and the present stock of plants be examined, in order to have a due supply, and lose not a day in beginning to provide for deficiencies. Have all your plants as bushy as possible; attend to stopping the leading shoots. Sow a succession of hardy and half-hardy annuals, and the last week of the month sow seeds of biennials, as *Hollyhocks*, *Sweet Williams*, *Scabious*, *Canterbury Bells*, etc., also seeds of perennials. *Auriculas* and *Polyanthuses*, shade, give plenty of air, and secure the stems; give manure-water every third watering. Pot off new-struck *Dahlias*, and *repot* those you intend to grow for exhibition, so as to have the plants strong and robust by turning-out time. Plant out roots of *Marvel of Peru*, *Carnations*, etc., pot off directly; shade for a day or two. *Pink* and *Pansy* beds must have the surface stirred, and an inch of fresh soil spread over. If *Tulips*, *Hyacinths*, *Ranunculus*, or *Anemones* be affected by frost, early in the morning sprinkle cold water over them. Let the covering be over the *Tulips*, but open at the side. A shower of rain every few days will be beneficial; if such occur roll up the covering. Secure all the flower-stems of *Tulips* or *Hyacinths*, so that the tall ones do not get broken by strong winds. Twist together two or three pieces of green worsted, and place a nice green stick at the end of the row; to one secure the worsted, then put it round the stalk of the first flower, and tie in a loop, carrying it on through the row, and secure the other end to the stick. The flower-stems are thus kept safe, at equal distances, and as they rise, draw up the sticks or worsted at each end in proportion through the season. Stir the surface of the bed, and protect from hailstorms. Bud *China* and *Tea Roses*, as soon as the bark will rise. If early *Roses* are attacked by insects, sprinkle with sulphur and tobacco-dust. *Pansies*, in pots, give manure-water twice a week; plant others in beds for late bloom. *Verbenas*, stop and train, and give manure-water twice a week; strike cuttings. Prick out *Annuals*, as *China Asters*, *Stocks*, etc., in a warm situation to strengthen prior to final planting for bloom. *Ranunculus*, let the soil be pressed firm about the neck of the plants; add an inch of fresh strong loam over the bed, and water freely between. *Tall Lobelias*, encourage by repotting, whether for beds or otherwise. *Wallflowers*, sow for next spring-blooming. Transplant runners of *Neapolitan Violets*, to be potted or planted on a bed afterwards for blooming. Cuttings of *China Roses* put out firm in a shady border will soon strike root. *Rose Stocks*, cut back to a bud or two all shoots not required for budding on. Layer *Rhododendrons*, *Acubus*, *Azaleas*. Graft *Thorns*, *Limes*, *Laburnums*, *Cytisus*, etc.

GREENHOUSE.—See that *Balsams*, *Salpiglossis*, *Globe Amaranthus*, *Brachycomas*, etc., are flourishing for summer ornament. *Tall Lobelias*, *repot*. Cuttings of the young wood of *Azaleas*, *Epacris*, *Heaths*, etc., which bloom during autumn or winter, will now strike freely. *Vases* and *Baskets* of plants now get ready. *Salvias*, strike cuttings for plants to bloom in autumn or winter. *Fuchsias*, train, give manure-water occasionally. *Camellias*, water freely whilst in bloom; if over, then *repot* into a size larger, put them in a gentle warmth, and promote a vigorous growth of new shoots, till the flower-buds just appear. *Orange* and *Lemons*, graft or inarch; place in a hot-bed frame of gentle heat. *Pelargoniums*, guard against green fly, or the flowers will soon be destroyed; fumigate two nights together, then syringe freely, using soft water; twice a week give manure-water. Plants to bloom in August and September, now stop the shoots; those now in bloom should be shaded during mid-day. *Lilium lancifolium*, and its varieties, encourage by repotting. *Chrysanthemums*, strike, pot, etc. *Oleanders*, encourage by a little extra heat.

STOVE.—The winter-blooming plants cut down, and as soon as new shoots appear, *repot*. *Achimenes*, *repot*; also *Cockscombs*, etc. *Baskets* of drooping plants occasionally dip in water. *Gloxinias* and *Gesnerias*, *repot*, and syringe the foliage over and under twice a day. *Ixoras*, etc., for exhibitions, supply liberally with manure-water. Cuttings of young wood strike freely now. *Gardemias*, duly attend to have a succession in bloom, keeping some in frame, and remove here.



HYBRID GLOXINIAS.

The Floricultural Cabinet.

MAY, 1855.

ILLUSTRATIONS.

GLOXINIAS.

A CELEBRATED French author on gardening, CHARLES LOUIS L'HERITIER, conferred the generic title *Gloxinia*, to commemorate B. P. GLOXIN, of Colmar, a noted German botanist. The species which first bore the name was *G. maculata*, having been discovered in South America, and introduced into England in 1739. It is therefore almost one of the oldest of our hothouse plants, for but a few years prior to its introduction the first glass plant-house in England was constructed. It is, too, one of the handsomest blooming hothouse plants we possess even at the present day, when properly treated. Its native situation, in South America, is on the margin of dense woods, where the surface soil is a light leafy mould; and it is worth a remark here, that all the species subsequently discovered in South America and introduced into England were found growing in similar leaf-mould and situation.

The next species introduced was *G. speciosa*, in 1815, being seventy-six years after the introduction of *G. maculata*; *G. caulescens*, in 1820; *G. hirsuta*, in 1824; and subsequently, *G. digitaliflora*, *G. tubiflora*, *G. discolor*, and *G. picta*, as well as some others more recently. The accession of so many diversified and handsome species soon presented scope for the attempt to raise hybrids, and the result has been especially successful, in the production of many highly beautiful, and very distinct both in form and colours. In 1845, the most singular and distinct was raised from seed saved the year previous, by Mr. JOHN FYFE, gardener, at Rothesay, Buteshire, in Scotland. It is supposed the seed was obtained from *G. maxima*, but what its blossoms had been impregnated by, it appears, is not known. The form of the flower and its erect position very much resemble the lovely blue *Spring-gentian*. It bloomed first in 1845, and attracted universal attention and admiration at the principal exhibitions

BRUGMANSIA ARBOREA.

BY MR. W. S. PRESTOE, ROYAL GARDENS, KEW.

THIS beautiful flowering greenhouse plant, though rather a robust grower, nevertheless can be brought to perfection with a little trouble, either for decorating the greenhouse or planting out in the flower borders, or *large* beds, in the summer season.

To proceed therefore with the process of its culture, I must commence with striking young plants; in doing this, there are several methods, viz., by cutting pieces off the roots, about two or three inches long; by cuttings made from the *young wood* when about three inches long; or by suckers, also by *eyes*, which is the best, and which I recommend to be adopted. Eyes should be cut from wood *one year old* and well ripened, about the beginning of February, leaving one inch of wood *above*, and one *below* the eye. They must be placed in pots of three inches across, singly. The soil used must consist of equal parts leaf-mould and loam, with a sprinkling of sand. They should then be watered and plunged into a gentle bottom heat, and there remain till they have grown about three inches (during which they must be carefully attended to with water), when they must be repotted into five-inch pots, into soil of two parts loam and one part rotten dung; the best is the remains of an old mushroom bed (every particle of which ought to be saved, as it is very useful for various *fast-growing* plants), to which should be added one gallon of charcoal, broken to about the size of common nuts, to each bushel of soil, with a good sprinkling of river or road sand; care must be taken, too, to have a good drainage. After this they must be taken back, and be plunged again for a few days to get

established, after which they should stand upon the surface of the plunging materials, or be removed to the shelf of a warm house, and afterward, as they require it, they must be repotted, using the same kind of compost as before. They should not have too large shifts at a time, say from five to seven or nine inch pots, which will be quite large enough. Great care must be taken that they do not lack a supply of water; they should also be supplied with weak liquid manure twice a week. If they suffer for want of water they will lose their leaves. They should also be syringed over and *under* the leaves *every day* with clear water, or that dreadful pest the *red spider* will certainly attack them. When the plants have attained the height of eighteen inches, the tops should be stopped, this will cause them to throw out side shoots, which will soon commence flowering; they should then be removed to the greenhouse or sitting-room. When they have ceased flowering they must be allowed to go to rest, by gradually withholding water from them, and placing them in a cool and dry part of the greenhouse. In February they should be brought forward and shaken out of the soil, and the roots be pruned in; also cut down the head, so as to leave only five buds of the main stem, binding a piece of matting between the two uppermost buds, this will cause them to break close back. They must afterwards be treated as previously described for young plants. I have seen plants not more than three feet six inches high having twenty-six full expanded flowers at a time, with a number of buds besides.

If any plants be required for planting out into the borders, they must be those which are one year old. They will only require to be started into growth in *the greenhouse*, and be planted out in May, into a soil prepared for them by adding plenty of manure; there they will bloom freely at the closing period of summer, and be highly ornamental. If required again, the plants can be taken up and stowed away anywhere protected from frost.

SHOWING THE FORM OF FLOWER BEDS, AND THE EFFECT OF BOX, OR OTHER EDGINGS, IN FLOWER GARDENS.

BY A GARDEN ARCHITECT.

To those who intend laying out plots of ground as flower gardens in the old Dutch or Italian style, with box or other edgings,—a style of gardening I should be glad to see more prevalent, especially where the limits are confined, from the simple fact that regular forms are always pleasing, and as many *beautiful designs* for such gardens have appeared in the CABINET from time to time,—perhaps the following method of showing the effect of such a garden may not prove uninteresting.

Having fixed on a design, the ground is dug, made smooth and

level; the figures are traced thereon in the usual way with exactness. Instead of pegs, I take a barrowful or two of light-coloured sand, which is strewed on the traced lines about an inch in thickness, in a neat and compact manner; this in a few minutes becomes white and dry. The effect is really very pleasing. You have as it were a garden with edgings of sand, which, contrasted with the dark soil, looks as handsome as box itself. By this method the unsightliness of a multitude of pegs is avoided, which to most minds, especially when the figures are complicated, appears intricate and perplexing, to say nothing of the difference in the labour. The effect of a large garden may be shown in a beautiful manner by the above method in a very short time. Another material advantage is its permanency; during the absence of the proprietor, or from any other cause, it will remain in the same state for a long time.

I am aware that some persons may smile at the simplicity of the above remarks; but I am confident that on trial they will be duly appreciated, and as the season for performing such operations has now arrived, I trust they will be the more acceptable.

REMARKS ON PASSIFLORAS.

BY MR. JOHN SHEPHERD, GARDENER AT WYNFORD HALL.

P. RACEMOSA.—This fine species thrives well when potted in a mixture of *loam and peat*, with a free drainage, and placed in the orchidea stove, where it obtains plenty of heat and moisture. If cuttings be made of the firmest of the *previous season's wood*, in May, then planted in pots well drained with potsherds and filled up with sand, and afterwards placed in a temperature of from 70 to 80 degrees Fahrenheit, drying them occasionally, to prevent their damping off, but little difficulty will be found in striking them. These will make fine plants by autumn.

The greater part of this genus require the heat of the stove; the *P. quadrangularis*, in particular, seldom does well except it be grown in the corner or side of a bark bed. Either, therefore, make a square partition with bricks or boards, one foot wide and two feet deep, or make a box for the purpose, and plunge it one side of the tan pit. Leave in this box or division several holes round the sides, for the egress of the roots; fill the box with good *rich loam*, and put in the plant. Every autumn, shorten the stems of the plant in a similar manner to cutting a vine; that is, if the young shoots are found weak, shorten them to two or three eyes of the old wood, and the stronger ones proportionally. In February, just before the plant begins to grow again, raise it, if convenient, out of the box, trim its roots, and, after having put in a supply of new soil, replace it. If not convenient to raise it, take out so much of the old soil as can be got round the sides of the box, reduce the ball one-third, and add a

fresh supply of loam. Abundance of water is also requisite during the flowering season, or the fruit will set very shy, even with impregnation. Fruit is produced from the end of June till Christmas. This fine species, with *P. edulis*, *alata*, *ligularis*, *incarnata*, *maliformis*, and *lanceifolia*, are grown for their fruit in America, where they are known by the name of Granadillas, because the fruit bears a resemblance to the Granada, or Pomegranate.

Passifloras are sometimes rather shy at setting their fruit; this may be remedied by impregnating with the pollen of other species, in preference to their own pollen.

P. alata will grow under the floor of a hothouse, and in other situations where most of the stove species will *not* live; only it is necessary to keep the roots quite moist.

P. racemosa will bear fruit, if impregnated with the pollen of *alata*, or other species, but shows no disposition to do so when confined to its own stamens.

P. Decaisneana.—I obtained a plant of this most splendid species last spring, grew it in a large pot in a warm greenhouse, and trained round a pillar; it bloomed most admirably. I potted it in equal parts of good loam, peat, and old well-dried cow-dung, with free drainage.

All the stove species require cutting in more or less every autumn.

MESEMBRYANTHEMUMS HIGHLY ORNAMENTAL FOR THE FLOWER GARDEN IN SUMMER.

BY LOUISA MACE, AN AMATEUR FLORICULTURIST.

THE profusion of blossoms which this extensive family of plants produce, and the neatness of their growth, ought to render them greater favourites than they seem to be at present, especially as summer ornaments to our flower gardens. I am of opinion that they are much hardier than is generally supposed; and although from their succulent nature it is evident they will not stand frost, yet they may with success be planted out in the open air much sooner than they usually are. Mesembryanthemums that are intended for planting out in the flower garden should be repotted in March, in soil composed of fresh loam and peat in equal quantities, with a sufficient portion of sand to prevent it from becoming coagulated. When they are potted, the soil should not be pressed very tight, and sufficient space should be left for half an inch of fine gravel to be placed on the top (from which all the sand has been thoroughly washed), this will keep the surface of the soil from becoming hard, and also keep it moist; for although these plants are impatient of wet, yet nothing is more detrimental to their vigorous growth than drought. After they are potted they should be placed in a frame, and kept close and moderately warm till they have taken fresh root, when they

should be gradually hardened, that they may be ready to turn out not later than the end of April. In placing them in the open air, it is not essential that they be turned out of their pots; but if they are, the balls should by no means be broken. Always have them where they can have full sun. After they are turned out, they ought to have a slight framework or hoops placed over them, in order that they may be carefully protected from cold winds and heavy rain for a short time, especially at night. Thus treated they will amply repay the trouble that has been taken with them, by producing a constant succession of their splendid blossoms till the frosts in autumn stop vegetation, especially so if grown upon a rockwork, whether a small-sized one formed for the purpose, or upon one of a large scale, where is a general collection of other plants.

RAISING SEEDLING STOVE FERNS.

BY A PRACTITIONER.

THE following is a successful method of raising Stove Ferns from seed:—

Fill any convenient-sized pot with sandy peat earth, and on the top allow a few pieces to rise above the rest. When this is done, merely shake the seeds on the top and sides of these pieces. It will be readily understood that the minuteness of the seeds requires this precaution, for by sowing them in a pot on a level surface the whole of the seed would be subjected to the same kind of treatment, which might happen to be either too wet or too dry; indeed, it is not impossible, even with the greatest care, that both may occasionally happen. The soil in which the seed is sown ought to be scalded with boiling water, in order to kill any seeds of the common hardy kinds that may accidentally have found their way into the soil, such as *Aspidium Filix-mas*, and some others, which, even with this precaution, will not unfrequently intrude themselves.

They seldom succeed so well as in a close frame in a cool part of the stove, where evaporation can be most effectually prevented; but when pushed, they will by no means endure to be continually kept close under bell-glasses. Water must never be applied to the surface of the pots; but by keeping the pots in feeders which contain a little water, they will generally keep themselves sufficiently moist.

THE LOVE OF FLOWERS.

BY A COUNTRY CLERGYMAN.

THE love of flowers is a delightful, a natural, and a rational inclination of a refined mind. Flowers are among the most beautiful objects in nature; their delicacy, their forms, and their colours attract the

most incurious eye; and their fragrance is gratifying to one of the most acute of our senses. Whether produced by the lofty tree, the humble shrub, or the lowly herb—whether found on the mountain, in the valley, in the lake which lies, or the stream which wanders through the vale, they are equally admired and admirable.

The most untutored, even the infant mind, is delighted not only with the view but with the possession of flowers. They are the emblems of purity and innocence, and being the chief and most conspicuous ornament of the vegetable creation, they are borrowed to decorate the habits and the habitations of man; they add a charm to the barren wilderness, and are hailed with pleasing emotions by the weary traveller in the most lonely desert.

Ever since gardens were attached to the dwellings of men flowers no doubt had an early introduction. When fruits and sanitary herbs were admitted for the supply of his board, and trees for shade and shelter, flowering plants were added to adorn his home and delight his eye.

That some species of flowers, from the splendour of their blossoms, the sweetness of their scent, and the ease with which they could be transported from place to place, became in course of time more regarded than others, is a fact about which there can be no doubt. This is evident from looking at the inmates of our flower gardens at the present day. A majority of these are bulbs and tubers, viz., anemones, ranunculuses, tulips, hyacinths, narcissus, etc., all of which have received the particular care and regard of all lovers of flowers. The facility with which these different plants can be cultivated, the great beauty and amplitude of their flowers, and, what is still more attractive, the readiness with which their colours respectively become interblended among themselves, enhance their value and extend their cultivation.

So interesting was the mutability of form and colour to which these bed flowers were subject, that new varieties were extravagantly prized, and so highly esteemed, that single roots were often (as now) sold for considerable sums of money. The demand for these new varieties was so general and incessant throughout Europe, that commercial cultivators sprang up in many places, particularly in Italy and Holland, so that floriculture became a distinct branch of gardening, and the business of a florist a distinct and profitable branch of trade.

The treatment of these tribes of plants also became a distinct section of the flower-gardener's duty. Rules were laid down not only for the management of the plants, but also for judging of the specific merits of the flowers. A sort of standard was arbitrarily fixed among practical florists and amateurs, by which all varieties were to be judged; this consisted of certain forms, positions, and colours, and particularly in the combinations or dispositions of the colours. The natural form, however elegant, or the variegation of the tints, however vivid and striking, are not to be judged by their own intrinsic excellence, but by the amateur standard previously fixed; and to

which if the new flower does not make a near approach, it is at once declared naught and worthless!

This refinement in flower-craft never disturbs the general lover of flowers. He has his beds of tulips, of hyacinths, of ranuncules, etc., and from every individual contained in his collection he derives unalloyed pleasure. He is not tortured by that precise fastidiousness of propension (for taste it cannot be called) which will make him turn away disgusted from a beautiful tulip merely because it is somewhat a foul bizarre, or an imperfect byblomen. Whether a hyacinth be single or double, whether with a plain or a coloured eye, if it be a well-grown stately flower it meets his approbation. Nor is his regard confined to the narrow limits of the arch-florist; he bestows attention on every bud that blows, whether the early gems of spring, the ample blossoms of summer, or the parting glories of autumn.

This general love of flowers is a source of unceasing pleasure to the possessor. In all his walks, whether in the garden or in the fields, in the highly cultivated pasture, or on the open common, he meets something to admire and arrest attention. His flower garden is a receptacle for everything that is gay or sweet; he collects not only the ephemeral favourites of the professional florist, but also the more lasting ornaments of the grove and shrubbery.

Unluckily for the exclusive notions of the thorough-bred florists many of their exquisites are monstrous, and as far removed from the simple elegance of nature as art and a vitiated fancy can make them. At the same time we willingly admit that a super-refined taste in flowers is a professional qualification, and to the amateur an accomplishment, which to both may be productive of personal satisfaction and happiness, which is so far good; and if at the same time it can be turned to account as a source of profit to the first and of fame to the second, it is at least a commendable study and a laudable pursuit.

But it is frequently observed of this flower fancy that there is danger of its running into extremes. Some societies have erred in this way, by carrying the pursuit of *floral varieties* to too great a length. Such exertions do nothing for science. The botanist abhors and disclaims it; the cultivator of the permanent beauties among shrubs and trees scouts the idea of giving preference to objects of so fleeting a character as what are at present called florists' flowers, more especially if it operate so as to cause a neglect of less perishable plants. It is a diversion of the public mind from things which have long been and will long continue to be the glory of our gardens, to trifles of so fugitive a description that they are but rarely seen thrice in the same place, their value and novelty diminishing or rather vanishing together in a very few months.

The old-established stage, bed, and border flowers are not alluded to in this charge—they, it is likely, will always keep their ground in public estimation; but new tribes have been lately brought into notice, which are of a much more ephemeral character, and from the

great sensation evinced in behalf of those transitory beauties, there is fear lest the legitimate love of flowers diverge into that satiety of mind called *florimania*.

That our tastes and peculiar fancies are not always regulated by sound judgment and prudence needs no proof. "*De gustibus non est disputandum*" is an old saying, but there is reason in all things. The leaders of fine taste in the floricultural world should endeavour to direct the public feeling to things truly valuable, and inculcate pure unsophisticated notions respecting the forms and tints of flowers, which may be appreciable by every one. At present the distinctions between first, second, and third rate Tulips, etc., are really so imperceptible to common eyes that much of the pleasure of looking at fine flowers is nullified for want of a little knowledge, which appears to be impounded in the heads of a few professional men. This information the public have a right to expect from floricultural societies, especially those which have periodical publications attached to them. These societies include some talented men, who, while they are engaged in promoting the culture and fostering the natural taste for flowers, should at the same time fix on those things for exhibition and prizes as will be henceforth real and lasting ornaments to our gardens.

No one can object to such associations. Floriculture, as already observed, is one of the most rational and pleasing amusements; it tends to refine and humanize the rude or ruffled mind; and those who take the lead in upholding it should aim at keeping it within reasonable bounds. The old stage, bed, and border flowers will never be abandoned; but all these, beautiful and sweet as they are, cannot be compared with the Fuchsias for elegance; the Azaleas and Kalmias for delicacy; or with the Rhododendrons, Magnolias, and Camellias for substantial and lasting grandeur. And yet, with regret be it stated, that there are perhaps thousands of these fine shrubs sold for a mere trifle, or annually committed to the flames in our nurseries, while the versatile Calceolaria and Mimulus, the lovely but puny Hearts-ease, and the coarse though gaudy Dahlia engross the attention and command the purses of every one who wishes to shine as a fashionable florist.

PRACTICAL NOTES ON THE MANAGEMENT OF GREENHOUSE PLANTS.

BY AN EXTENSIVE PRACTITIONER IN A NOBLEMAN'S GARDEN, NEAR
NEWCASTLE-UNDER-LYNE.

GREENHOUSE plants should never be supplied with much water in wet or frosty weather, and none unless the soil in the pots becomes dry. This rule must be particularly attended to, from the beginning of November till the end of February.

In March, the plants may be occasionally syringed overhead to clean and refresh the leaves, but always select fine days for the purpose; and let this, as well as the general waterings, be done in the

morning, from the middle of September to the beginning of May, and at all other times in the evenings.

As the season advances, and the weather becomes milder, increase the quantity of air, until, by the middle of May, a large portion of air may be left on all night, except in case of severe frost. And this rule of admitting air must be attended to throughout the winter at every convenient opportunity; but always make a practice of shutting up early in the afternoon.

Always keep the plants clean, and perfectly free from dead leaves and weeds; this must be particularly attended to in the winter season.

About the beginning of March repot all the plants that require it, and top-dress the remainder with good fresh soil. Some free-growing kinds may require potting two or three times in the course of the summer, but the last potting should never be later than the middle of September.

As greenhouse plants differ materially from each other in habits, so also the soil suitable for them must vary in proportion. For a general idea on the subject, the following, with some few exceptions, will probably be found pretty near the mark.

All plants whose branches are fragile, and roots of a fine thready fibrous texture, with general habits like *Erica*, as *Diosma*, *Ander-sonia*, *Epacris*, etc., will require the same soil (peat earth), and very similar treatment to Cape Heaths.

Those whose wood and general habits partially differ, and whose roots are of a stronger texture, as *Acacia*, *Ardisia*, *Stenocarpus*, etc., will require a portion of sandy loam,—in many cases about equal parts; and where the habits, etc. differ materially from the heath, only a small portion of peat earth will be required, and the compost may be made a little rich by the addition of well rotted-dung.

Almost all Cape and other bulbs, as *Sparaxis*, etc., thrive best in a mixture of light rich sandy loam, leaf-mould, and a little peat. Shrubby and herbaceous plants, with luxuriant roots and branches, as *Myrtus*, etc., require rich loam, lightened with leaf-mould. Plants with powerful roots and but slender heads, as *Veronica*, *Senecio*, etc., require a light sandy soil, mixed with a small portion of leaf-mould and very rotten dung.

Never pot the plants in a soil too wet; it is better to keep the soil rather dry than otherwise. Nor ever sift the soil, but chop and break it as fine as possible, because sifting deprives it of the fibrous particles, amongst which the roots grow very rapidly. Always in potting give a good drainage with broken potsherds.

In the beginning of June the plants may be removed to their summer station, out of doors. Always place them in an aspect screened from the effects of the mid-day sun, but yet where they will be able to receive the sun morning and evening; whilst in this situation they must be supplied with water as often as they require it.

In the beginning of September again examine them throughout, and pot all that require it, and top-dress the remainder; by no means

let this be done later than the middle of September, or the plants will not have time to recover before winter.

Not later than the first week in October, prepare to remove them back into the greenhouse. Clean and properly tie them up, previous to setting them on the stage.

After they are removed again to the house, give them abundance of air, day and night, and continue gradually to decrease it as the weather becomes colder.

Propagation.—The propagation of greenhouse plants must be performed at different times of the year, according to the nature and habits of the plants, and the state of growth in which the cuttings will strike with the greatest freedom.

Some grow the best when the wood is quite young and tender, as *Fuchsia*, *Andersonia*, *Adenandra*, etc.; others when it begins to assume a brownish colour, called half ripened, as *Heliotropium*, *Goodenia*, *Pimelea*, etc.; and others when it has become quite hard and ripe, as *Araucaria*, *Aulax*, *Melaleuca*, etc. But as a general rule, half-ripened cuttings will do the best. Some plants, however, will not grow from cuttings of the stem at all; these are propagated by cutting off large pieces of the roots, planting them in pots of soil, and plunging them in a little bottom heat, as some species of *Acacia*, etc.

All hard-wooded plants make roots best in clear sand, but soft-wooded kinds should be planted in a mixture of loam; therefore, after well draining the pots or pans intended to receive the cuttings, fill them, according to the nature of the plants to be propagated. On no account plant soft-wooded and hard-wooded cuttings in the same pot.

Some sorts will not grow readily without a little bottom heat. Plunge the pots in a cucumber frame, or pit of any kind, where they will receive the benefit of warmth.

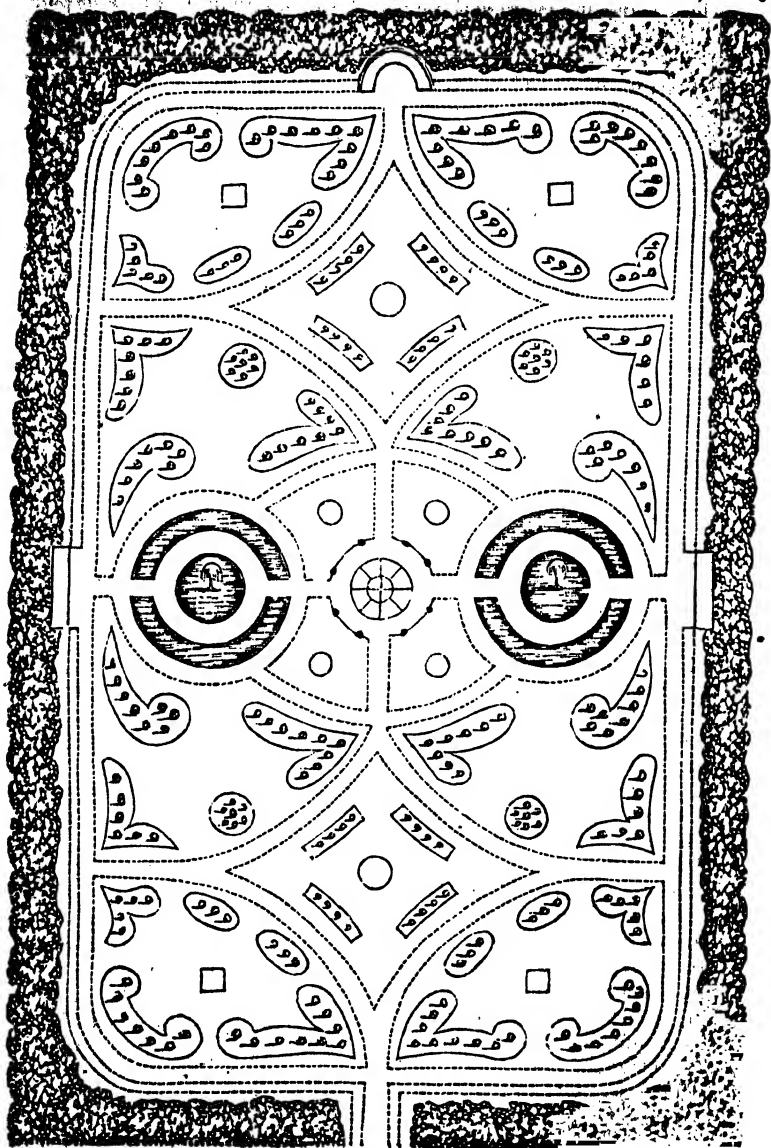
After putting in the cuttings, give them a gentle sprinkling of water through a fine rose; keep the frame as closely shut down as can be until the cuttings are struck, which will be in about three weeks or a month, with some few exceptions. Look them over, and water as often as they require it.

Those sorts requiring to be covered with bell or hand glasses will require to have the glasses taken off occasionally and wiped, to prevent the cuttings from being injured by damp.

When the cuttings have struck root and begin to grow, then pot them in small pots filled with soil suitable to their nature; replace them for a while in the frame, and gradually expose them to the air, until they bear the temperature and treatment of the other plants in the greenhouse.

Sow the seeds of greenhouse plants in pans or pots filled with a light soil, as early in the spring as possible; place the pots in a very gentle heat, keep the soil damp by covering with moss, and occasionally sprinkling with water; and when they are about an inch high, pot them off into small-sized pots, and treat them in the same manner as cuttings.

DESIGN FOR A FLOWER GARDEN, BY T. BUTGER, ESQ.



10 0 50 ft

The circular structure in the centre of the design in the previous page is intended to be open all round—the roof being supported by a pillar in the centre, and by eight pillars around the circumference; round the central pillar is placed a seat. The pillars around the circumference should be adapted for climbing roses, or other creepers. The two basins with fountains are each surrounded with aquariums, intended for the growth of water plants, such as the white and yellow Water Lilies, etc., or they may be substituted by semicircular beds, as taste may suggest. The small open circles and squares intimate the sites for statuary, vases or urns; if desired, handsome shrubs might occupy their places. There is an alcove at the end, and a seat on each side, in the shrubbery, placed adjacent to the fountains. Those who might object to the expense of an ornamental iron structure in the centre of the garden, might substitute one of a rustic character, roofed with thatch, the whole covered with creepers.

REMARKS ON APHIDES (GREEN FLY, ETC.)

BY A PRACTICAL GARDENER IN SUSSEX.

OF the many insects found in gardens, the *Aphides*, from their numbers, and from the great variety of plants on which they live, are perhaps the greatest enemy of the gardener, though no one is more easily extirpated, provided timely and proper measures be taken to kill or banish them. They are as troublesome in stoves, greenhouses, and forcing-houses as in the open air; in the former, they fix themselves on vines, peach and nectarine trees, on strawberry plants that are forced, and almost all other plants taken in to be forwarded, whether for the flowers or fruit. In the open air, they destroy or very much tarnish our finest rose trees; they attack peach, nectarine, plum, and cherry trees on walls, and, if suffered to remain unmolested, will destroy the trees entirely. When this happens, it is usually attributed to *blight*, the common name for all defects of fruit trees, whatever may be the cause, whether from neglect, mismanagement, mildew, or insects.

The *Aphides* are produced by what some naturalists called *animal-cular* generation; that is, as they explain it, not only is a mother-insect impregnated by the male, but all her progeny also for nine or ten generations: hence their astonishing fecundity and increase in a very short space of time. In the autumn they are oviparous, laying their eggs in patches, firmly glued together round the bases of buds, or in any hollow of the bark. In this state they appear to be indestructible by frost, because, as soon as the warmth of spring commences, they come forth in myriads, leaving their little glutinous cases behind. In the summer they are viviparous, and then the parturient females may be seen in the act of bringing forth their young in rapid succession; so that if only a single female be seen on the point of a shoot, she is soon surrounded by a numerous family.

That the *aphides* are easily killed by fumigation of tobacco-smoke is well known to every gardener; or the trees sprinkled with snuff, or tobacco-water from time to time will keep them off. But the grand object of the gardener ought to be the prevention of the attack; and this can only be done by applying a wash in the autumn, to prevent the mother-insects from choosing the plants so washed as a place for nidification, for if this could be accomplished, there would be no early appearance of the young broods in spring. Soap-suds, tobacco-water, and *sise* (such as is used by bookbinders), etc., boiled together for a few minutes, and when in a milk-warm state syringed over and under the foliage or rose buds, before the flowers expand, will destroy the *Aphides*. It coats over and smothers them, but does not injure the plant in the least. A day or two after the plant may be sprinkled over with pure water, to wash off the mixture. If the ground under the trees be now and then dusted with soot, which is always offensive to insects seeking the sweets of either foliage, flowers, or fruit, it is essentially useful.

Such nauseous applications can only be used before the flowers appear, as the scent would certainly be deteriorated by any portion of these ingredients remaining upon them; with fruit trees, too, fumigation may be employed to within a fortnight or three weeks before the fruit is ripe, as the taint of this on the trees is much sooner dispersed. Cherries on walls are often sadly disfigured by the *Aphides*; their excrement, called *honey-dew*, falls on the fruit, and, being of a clammy consistence, every particle of dust sticks to the smooth skin of the fruit, rendering them unfit for the use of the table, unless they be thoroughly washed in water. Such trees should be well fumigated as soon as the fruit are as large as marrow peas; the trees may be syringed over and under with the above mixture.

There are many different species of *Aphides*, and of different colours, which, it would appear, is owing to the quality of their food. On the Rose and many other plants they are green—hence the common name of *green fly*; on the Elder and common garden Bean they are black; on some Geraniums they are red; and on Crack-willow they are grey, and of a very large size, which is a very distinct species. A mealy sort attacks cabbages and turnips in dry summers, and the common green species sometimes fall on the common field-pea in such numbers as positively to destroy completely the crop, leaving the surface of the ground white with their sloughs, and where there are also myriads of the little two and seven-spotted lady-birds devouring the *Aphides* which remain on the ground after the podless straw is raked off. On one particular occasion I could not but observe, at the same time, the vast concourse of summer-birds which congregated in the field to assist in the destruction of the *Aphides*; black-caps, garden-warblers, white-throats, lesser white-throats, three sorts of willow-wren, etc. etc., all attended by their young, had here a sweet and rich feast.

Greenhouse and similar pot plants are subject to the visits of

~~As before, the infected plants should be removed to a clean stream, and fumigated there, or they may be syringed over and under, as before mentioned.~~

THE FLORA OF SUMATRA.

BY W. MITTEN, ESQ.

WHEN I last wrote to you I promised to give you some account of my late trip to Sumatra, and I now sit down to fulfil that promise. The river I went up, the Indragiri, joins the sea on the east coast of Sumatra, in about 85 degrees south. It has four or five mouths, all of the size of large rivers, and between them are large islands, perfectly flat and hardly above water, covered with Nipa Palm, Mangroves, *Avicennia*, and other such amphibious plants. If there is anything else in the centre of them, which is unlikely, it will never be known, for they are too large to traverse in a day, and no human being could live a night in them, from mosquitoes and miasma, though they are inhabited by myriads of wild pigs and monkeys.

As you get a little further inland, these plants give way to another species of Mangrove, a very elegant plant, with long drooping branches like a willow, and rose-coloured flowers, which bears an eatable acid fruit, and grows in the water like Mangrove; it is an Anacardiaceous plant, with corky-skinned fruit, and very venomous juice. A little palmate-leaved Palm is also very common, and a few *Orchideæ* begin to appear on the trees; this is the region of the freshwater tide, after passing which a marked difference takes place in the vegetation, from the absence of the Anacardiaceous plant, whose bright red young leaves make it very conspicuous. The banks are now fringed chiefly with two or three species of *Arundo* and *Saccharum*, mingled with several species of *Phyllanthus*, in habit very much like willows, the whole matted together with *Ipomœa*, a small *Cucumis*, and a weedy-looking *Cissus*, or something of that kind. Plants here are very social in their habits. After the river's bank has been clothed for a mile or two as described, the grasses and climbers will vanish for a similar distance, giving place to a dense thicket of *Hibiscus propinqueus*, one of the most beautiful plants we have, though very common; the flowers are large, golden yellow, with a deep puce centre; they are, however, in beauty early in the morning only, unless on a cloudy day, fading after a few hours' sunshine to a dingy dirty red. This in its turn will give way to a species of *Pandanus*, with long straight trunks, ten or twelve feet high, and very glaucous leaves; and here and there, where the bank has slipped down into the stream with the water-side vegetation, you get a glimpse among the tall trunks, green and grey with *Lichens* and *Hepaticæ*, into the dark swampy forest, tangled with huge creepers and reeking with vapour. I always used to contrive, if possible, to stop at one of these places to cook, because elsewhere I

could not get into the jungle. But except *Cryptogramma* there is little to be seen. Below *Piper*, *Pothos*, and *Freycinetia* are the principal visible plants, sticking close to the trees, and a few *Arums* and *Bellamineæ* are generally to be found growing in the mud and water. I got, however, a few *Mosses*, and abundance of *Hepaticæ*, but rarely in fruit; some of the latter, growing upon living leaves, are very curious. We went up the river four days before coming to any houses, which with their rice clearings materially altered the landscape; but there was not a hill to be seen two feet above the water.

The people are all Malays and Mahomedans, and are well off, and apparently happy. At this part of the river the prevailing features are the Cocoa-nut and Gomuti Palms, and vast plantations or rather jungles of Plantains; these are generally of a coarse seedy kind, but contain a great deal of farina, and are most valued as food, not as a luxury; wherever they are planted they soon take possession of the ground, to the exclusion of everything else, and are very ornamental, as they grow to a great height and size. A vast variety of fruit trees are cultivated, but very few vegetables; some species of *Luffa* and *Ocimum*, the common red *Pumpkin*, some *Capsicums*, and one or two species of *Celosia* and *Amaranthus*, used as spinach, are nearly all, except, of course, *Yams* and *Sweet Potatoes*, which are universal here. Of sweet-scented flowers, such as *Jasmines*, *Michelia*, *Tabernaemontana*, and several strong-scented *Anonaceæ*, they are very fond; the *Tuberose* is a prime favourite, but *Roses* are in no esteem—they are not strong enough for Malay organs. They make amends, however, for the paucity of their flower-gardens by cultivating a great abundance of medicinal plants, of real or fancied virtues, and about these they are never tired of talking; most of their properties are rather magical than remedial.

The object of my journey was to examine some beds of coals; so when I reached the Rajah's town, I asked him for a boat and men, mine being too big to go up the rivers. After two or three days' delay, without which no Malay ever did or can do anything, I got them, and away we went. It was a small canoe, about eighteen feet long, and just wide enough for two people to lie down abreast, rather closely packed; in this there were nine of us, so you may believe it was rather close work; but it was a delightful trip. We went up a smaller river called Chenaku; it was at first a black, alligatorish-looking stream, fringed chiefly with a *Ficus*, with small oval polished leaves, and little pink fruit, whose pendent roots drooped everywhere into the stream, which for a long distance was very tortuous. The jungle here was very fine; the most striking tree being an enormous *Terminalia*, with a candelabriform head, and a tall smooth trunk; this and an equally large Dipteraceous tree were the most common. *Calamus* were in great abundance, and some very handsome. I counted sixteen species, and nearly all different to those I knew at Labuan. There was also a splendid caulescent Palm, called *Isul*, with a very tall straight stem, as white as ivory, and a

noble light green head, but this we did not see until we got to the hills, nearly one hundred miles from the sea. Two species of *Calophyllum* were very abundant, and, being covered with blossoms, completely perfumed the air with scent of *Rosa canina*; a splendid scarlet *Ixora*, and a climbing sensitive *Mimosa*, with yellow-white stamens, four inches long, were among the most ornamental plants I saw; another, of which I sent seeds to Kew, was a Cucurbitaceous plant, with large brilliant scarlet fruit.

The river, after going up about three days, had become shallow and rapid, so as to make the navigation of our canoe rather hazardous at times, though the only risk was of a bath in the bright cold water, bubbling over a bed of white quartz pebbles, the very *beau idéal* of a trout-stream, and swarming with fish. Wherever the rocks came down to the water, they were covered with *Ferns*, many of them very beautiful; and I saw some majestic *Tree Ferns* here and there, but I had no means of drying them. Nothing is more remarkable than the wonderful quantity of fruit up this river, especially the celebrated *Durian*; my boat's crew almost lived upon them. They were so abundant as to be of no value, and we went ashore and helped ourselves, before the people's eyes, to the produce of their gardens, which was literally rotting in heaps. The *Rhambutan*, and six or seven other species of *Nepelium*, were in equal profusion, as were also a dozen *Miliaceæ*. A very abundant creeper was the India-rubber-producing *Urceola*; its fruit is about the size of an orange, and the colour of an apricot, the thick outer skin full of milky juice, while within are about eight or ten seeds, enveloped in a tawny pulp, tasting like wild blotted medlars; the natives use the juice only for birdlime. I came across two curious *Scitamineæ*, one with small yellow flowers, which were generally abortive, their place being supplied by a small tuber, which drops and grows; the other a dazzling little plant, only a few inches high, with a large bunch of scarlet and yellow flowers and bracts. Another curious plant of this tribe has large tufts of barren leafy stems seven or eight feet high, while the small red flowers hardly peep out of the ground, at several feet distant. The people here are probably aborigines, but have become Mahomedans, and call themselves Malays. They are very industrious cultivators and gutta-percha collectors; but though I was just in the district, I could not get them to show me the trees. They also procure Gum Benjamin; this I saw, and procured some seeds, which I have sent to Kew. They cultivate coffee, but do not use the berry; they make an infusion of the parched leaf, which is very pleasant and refreshing; of this prepared leaf I also sent home a specimen. I suppose there is no such country in the world for sporting as Sumatra; elephants go about in large herds, and deer, bears, tigers, pigs, and rhinoceroses are quite common. Should I go to work the coal, which is very possible, I shall, I suppose, become quite a Nimrod. The coal I saw was very good, and very easily to be worked, but unfortunately a long way from the sea.

Do you think a collection of Grasses and *Cyperaceæ* would interest botanists? They are very abundant here; I think I could certainly get one hundred and fifty species, probably more. I have indeed begun to collect specimens enough for twenty or twenty-five sets, and as I do this in my morning walks, which, without some such object, would become very irksome, there will be nothing lost if it will not succeed; if, however, you think it would do, I should feel obliged if you would be my agent in the matter, and make the necessary announcement, for I should think it would be best to send home the first hundred or so, as soon as collected; in the meantime I will go on for my own amusement. The collection of *Mosses*, *Hepaticæ*, and *Lichens* which I am making accumulates slowly, as there are but few species, and those not easy to get in fruit, but I keep adding one now and then; they now number about twenty species, but all are good specimens in a good state.—*Hooker's Journal of Botany*.

REVIEWS.

The Book of the Garden. By CHARLES M'INTOSH, F.R.P.S., etc. In two volumes. Vol. I., Structural, price £2 10s.; Vol. II., Cultural, price £1 17s. 6d. W. Blackwood & Sons, Edinburgh and London.

THE author, Mr. M'Intosh, was head gardener for many years to the King of the Belgians, at Claremont, and subsequently to the Duke of Buccleuch, at Dalkeith, and now a landscape gardener etc., in Scotland.

From the well-known abilities of Mr. M'Intosh we anticipated, on the first announcement of *THE BOOK OF THE GARDEN*, that the public would be furnished with a mass of useful and interesting gardening knowledge. We were satisfied that, being so extensively engaged in *every department* of gardening, and so close an observer of nature, he could not have been practically engaged for so many years without making a multitude of important observations on every subject connected with gardening that came under his practice or notice elsewhere. This anticipation has not been disappointed, but has been realized beyond our most sanguine expectations. After *carefully looking over* these two superb volumes, we hesitate not to state that it is one of the most *really useful* garden publications ever issued. It not only contains the substance of his own extensive practical knowledge, but he has very judiciously given the practical experience of all the celebrated gardeners who have written upon the various subjects, in modern times, and has had the candour to acknowledge the sources from whence he has obtained them; thus embodying not only the details of his own practice, but those of the *best gardeners* up to the present time. The arrangement of the work is good, and in order to furnish our readers with a

fair specimen of it, we now give an extract of what is more especially connected with our own Magazine.

With the utmost confidence we recommend the *BOOK OF THE GARDEN* to all who desire valuable information on gardening in all its departments. The volumes are beautifully printed, contain about 1500 pages, and illustrated with 1350 admirably well-executed plates and woodcuts.

SECTION III.—HERMITAGES, ARBOURS, MOSS-HOUSES, AND SEATS.

These are all very pleasing and useful objects, particularly in extensive grounds. They not only serve as places of rest and shelter, but also as guides to the points from which the beauties of the surrounding scenes are to be seen to most advantage. The style of these erections must depend on the situation in which they are placed, or the situation must be selected for the intended erection.

In romantic and wild scenery rustic seats or houses should be placed; but where the hand of art has been more scientifically employed, a higher grade of accompaniments must be introduced.

"While the spectator rests," says Morris, in 'Essays on Landscape Gardening,' "the rustic or the decorated seat gives opportunities for examining some natural or artificial beauty which might not otherwise have received any particular attention. These resting-places afford to kindred tastes an opportunity of pointing out to each other innumerable effects and combinations that else might have been unnoticed. They are the points whence the highest gratification of the spectator is derived, and they contribute the most satisfactory reward to the landscape gardener."

The choice of garden seats, as well as of the spots on which to place them, requires a degree of taste and judgment apparently seldom bestowed on the subject. There should always be some kind of analogy between the seat and the scene of which it forms a part; and, for this reason, rustic seats should be confined to rustic scenery; and the seats for a lawn, or highly kept pleasure-ground, ought to be of comparatively simple and of architectural forms.

In the disposal of seats, some should be placed in the sun, and some in the shade; and, when placed by the sides of walks, gravelled recesses ought to be formed to receive them. All garden seats, except the rustic, should be painted stone colour, as harmonizing better with vegetation than any other colour; and, of all colours, the most unfitted for the purpose is green.

The hermitage is a species of resting-place, and was much more in vogue in former times than now. They associate better with grounds of the picturesque style than with any other. It may be said of them, as of all similar garden devices, that they have lost caste since the introduction of so many new plants. Formerly, when our gardens possessed few plants, art was called in to make up the deficiency in variety. Now plants have multiplied, and a different style of arranging

them has taken place. The attention of the owner is pretty well occupied, during the gardening season, in making additions to his collection, and in arranging and rearranging these, so as to produce a harmony of colouring, and to keep up that effect for as long a period as our short seasons will admit of.

All these kinds of structures have been condemned by most of our modern writers on garden arrangement and landscape; but, in peculiar situations, and under certain circumstances, they have their interest notwithstanding. However, like choosing the situation for a mansion, a temple, or a seat, or even viewing a painting hung against the wall, all depends on the position the object is placed in, and the point from which it is to be viewed.

Retired and sequestered situations are the proper place for a hermitage, and, at the same time, a position that could be easily defended in the event of intrusion, and from which some natural beauties can be seen. In this respect, the hermitage at the Falls of the Bran, near Dunkeld, as well as the one at the Falls of Acharn, near Taymouth, are excellent examples; while that which existed some years ago in the royal grounds at Frogmore was in as bad taste.

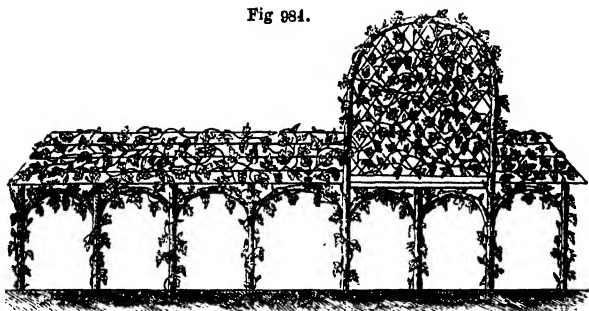
The furniture should be of the most simple description possible, and nothing artistical admitted excepting books; and these should be of the philosophic caste. The deception of placing imitation books, however splendidly they may be gilt and lettered on the back, may lead to deserved exposure.

Grottoes, like hermitages, are admitted as adjuncts into picturesque grounds. Those at Painshill and Oatlands were superb of their kind. The former was placed so that it could be approached by a boat from the river Mole, a portion of which flowed through it. It has long been suffered to go to decay; and the latter, once extremely rich in specimens of conchology, is now to be spoken of as a thing that was. It was entirely broken up, and the fragments sold a few years ago. It was buried in the side of a bank, and admittance gained to it through a labyrinth passage; and immediately in front of it was situated the grand royal cemetery of dogs, in which reposed the ashes of all the favourite animals of that family that had the good fortune to gain the love, affection, and esteem of their royal mistress, the late Duchess of York.

Caves, caverns, and subterraneous passages, in rocky localities, may be indulged in. The two former are to be regarded, in this country, more as singularities than places of enjoyment; but, in warm countries, they are amongst the first of garden luxuries.

Arbours, covered walks, and shaded resting-places come within the limits of picturesque grounds, if they are formed of living trees or shrubs. On the Continent, the vine is much used for this purpose; and so it may, to a certain extent, in the south of England; but beyond the midland counties, and in Scotland, the hop, clematis, ivy, honeysuckle, and climbing roses must be used as substitutes. The

Fig 984.



above figure, 984, displays the taste of the French and Germans in this matter, who in general place them against walls, and often carry them by a flight of steps to a considerable height, as in our figure.

In Germany, arbours are often fitted up amongst the branches of very large and old trees, and access got to them by means of a ladder. If study or privacy induce the visitor to ascend, the ladder can be drawn up, and so intrusion be prevented. We may here remark, that in general the terms arbour and bower have been considered synonymous: it appears that properly they are not. Mr. Mallet, of Dublin, frequently quoted in this work, says: "An arbour is a space covered and enclosed by the interweaving branches of trees, and reticulated stems of living plants, intended to afford shade and retirement. The words arbour and bower are properly very distinct, the former alone being formed of the living branches and stems of trees, whereas the bower, which is not derived from *bough*, or any analogous word, means simply any small chamber; yet they are used indiscriminately by the best writers."

The term bower seems, as it were, the word of poetry, in which it is frequently made use of; whereas arbour seldom is, if ever.

With us few natural arbours are to be met with. The least artistical are those formed by slightly arranging the pendent branches of the weeping ash, or similar-growing trees. A few props within, to support a rod or hoop, to carry up the pendent branches, is all that is required; and if these have too much the appearance of art, the smaller branches of the tree may be trained down upon them, or ivy may be planted and trained over them, and allowed to intermingle with the branches forming the roof.

The next kind of arbour for simplicity of form is that formed of tall, straight, young trees, of beech, hornbeam, mountain ash, willow, etc. These planted close together in a line, forming the back and sides of the purposed arbour, the front being in general left open, are bent over at the tops to form the roof, and tied together to keep them in their proper places. Sometimes the stems are crossed in trellis

fashion, and after a time they unite by a species of natural engrafting, and become exceedingly strong, and will last for years.

Fig. 985.

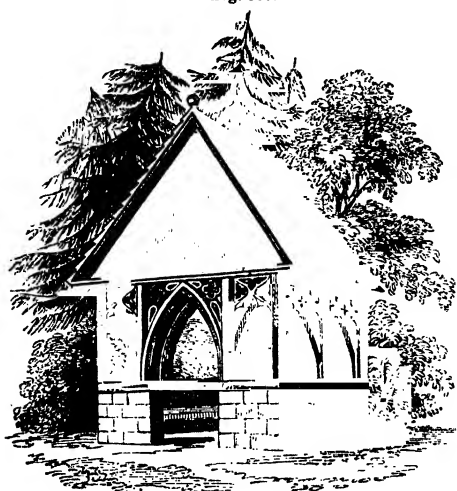


Fig. 985 represents a Gothic rustic arbour, or resting-place; the basement to be of stone, the superstructure of unbarked timber, and the roof thatched with heath. The floor should be pitched with pebbles in Gothic pattern, and the seats be made of oak plank. The authority last quoted says, in "Encyclopædia of Architecture," p. 986: "In the grounds of less ambitious villas, plain unarchitectural buildings may be employed; or wooden structures, simply

protecting the seat from the weather, may be resorted to. In England, it has always been customary, since the introduction of the modern style of gardening, to form what are called rustic covered seats." And we may add, since flower-gardens have been conducted upon anything like correct principles, other rustic ornaments have been freely introduced, and, when properly placed and adapted to the situation, have given great interest to the scene. Out of the English or natural garden we, of course, would not any more tolerate them than we would a temple of Grecian or Gothic architecture, or a Chinese pagoda, in them. Rustic-work, however well designed and elaborately executed, would be preposterous in the grounds immediately surrounding Blenheim, Chatsworth, or Eaton Hall. Architectural mansions should have their architectural gardens; and architecture, of whatever order, has abundant stores of garden decoration without interfering with the rustic. These principles are, however, not strictly attended to; and hence we some years ago saw a rustic thatched summer-house placed in a flower-garden closely attached to the princely palace of Blenheim, and could adduce numerous other instances of the same bad taste. At the same time, there is nothing incongruous in rustic-work existing at Blenheim, if sufficiently removed from the house and all other architectural objects. There may be a natural garden at Blenheim as well as at any other place, but it ought to be as far removed from the mansion as possible. Indeed, in such large places, it is perhaps proper that such should exist, as it relieves the mind, and remedies the monotony of wan-

dering through architectural alleys, vases, statues, fountains, and mural decorations.

Around cottage and villa residences, nothing is so appropriate as the natural style of gardening, and no ornament so proper as rustic-work; but that should always be of a substantial and tasteful description. An ingenious correspondent in "The Gardeners' Magazine," vol. x. p. 485, on this subject remarks: "One advantage of wooden rustic-work is, that it can be adapted to a great variety of purposes. Thus very beautiful, and even very architectural temples may be formed of unbarked wood. Ornamental doors, every description of garden seats, and flower-baskets, and vases of very elegant forms, may be composed of the same material. Shady walks also, having the shady gloom and enriched effect of a Gothic cloister, may be made of wooden rustic-work; indeed, there is scarcely any kind of garden ornament to which it may not be applied. I allude," continues this correspondent, "more particularly to what I call wood mosaic, which is, I believe, rather a modern invention. It is formed of split sticks, of various lengths and sizes, and having bark of different colours. The pieces are nailed to any flat surface of wood, and very beautiful and elaborate patterns may be produced by arranging the pieces according to their sizes and the various colours of their barks. Elegant garden seats, and vases of almost any shape, may be covered with this kind of mosaic work; but as it is not durable when constantly exposed to the weather, it is the most suitable for the inside of summer-houses and garden temples. In such situations, the richest specimens may be introduced, and, if varnished over, they would last for a number of years."

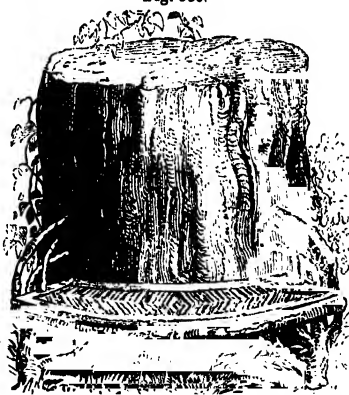
In corroboration of this, we may state that there are summer-houses in Dalkeith Park of this description that have stood uninjured for nearly forty years.

The garden seat represented in fig. 986 is the invention of the correspondent above alluded to, and, as he informs us in "Gardeners' Magazine," vol. x. p. 487, is placed against the stump of an old walnut-tree in his own garden.

Figs. 987, 988, and 989 represent other forms of rustic seats, which need no description.

Structures, such as arbours, moss-houses, etc., should be always placed in positions to command perfect view of some object of interest; indeed, this should not be lost sight of in placing seats and all other appendages, whether for shelter or repose. Some excellent

Fig. 986.



structures of this kind have lately been erected through the very extensive and highly varied grounds at Drumlanrig Castle; and so

Fig. 987.

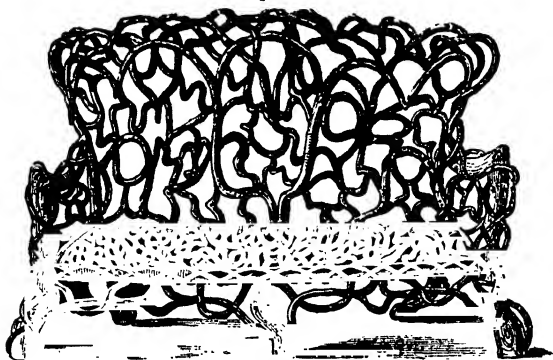
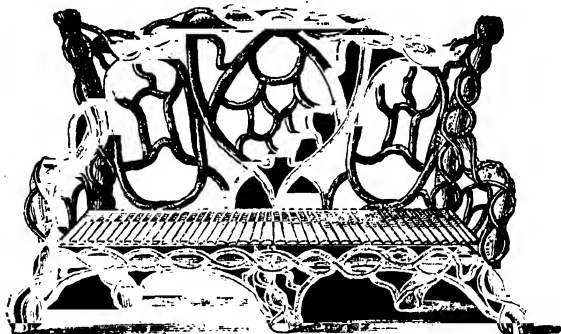


Fig. 989.



capacious are some of them, that not only the family and their visitors, but their attendants also, can find shelter in them. There is a degree of humanity in having such shelters distributed through an extensive domain, as they afford shelter to the workmen in bad weather. Highly useful and ornamental, however, though they be, care must be taken, particularly in small places, that they do not appear too close together, as structures in any way relating to buildings are far more conspicuous than sculptural subjects. They require to be introduced more sparingly, and never without the appearance of obvious purpose or utility.



Fig. 990.

Fig. 990 is thatched with heath, attached to the timbers of the roof with tarred cord, but, for appearance sake, secured with four bands

of rope made of *Polytrichium commune*, or any other similar strong-growing moss. The interior of the roof is first lathed, as it were, with hazel rods about one inch apart, into the spaces between which mosses of various colours are thrust firmly in; and by so doing, the whole of the roof is completely covered. The different colours may be placed in concentric circles or zones, or in any other pattern the artist chooses. The back and sides, as high as three feet above the seat, are covered with larch, hazel, or other straight-growing rods; and, if divided into panels, the rods may be so arranged as to produce any device desired; and, for the purpose of effecting this in a proper manner, that part to be so covered should be lined with boarding, and the device drawn upon it with chalk or black coal. The seat is supported upon rustic legs in front, and to the timbers of the structure behind; it is then covered with planking, and that with small rods similar to the back and sides. The front of the roof is supported upon columns of larch, oak, or any other kind of wood, having the bark on; the arches at top are easily constructed by using two pieces of curved wood; creeping plants are planted at their base, and trained over them and round the circular heads of the doorways. The spaces over the doorways may be either filled in with rods placed closely together, or in open lattice-work, according to taste.

Fig. 991 is constructed much in the same manner, only the supports in front are set upon a stone plinth to ensure their durability. The seat and covering of the back and sides are covered with rods, laid in what is called the herring-bone fashion, as seen in the sketch. The roof is in two parts, the

Fig. 990.

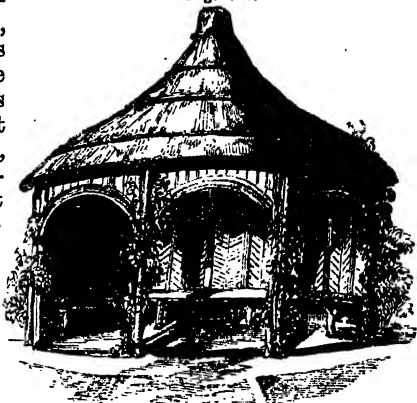
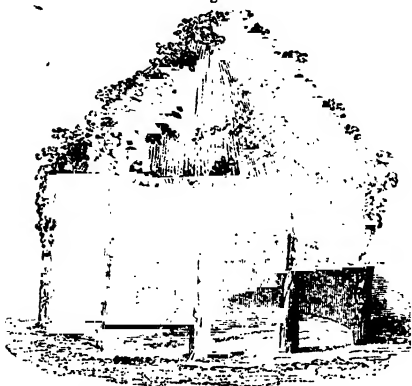


Fig. 991.



top part being thatched with reeds, and the lower part, after being boarded over, is covered with rods, so as to give that portion the appearance of a corrugated roof. The floors of both should be

Fig. 992.



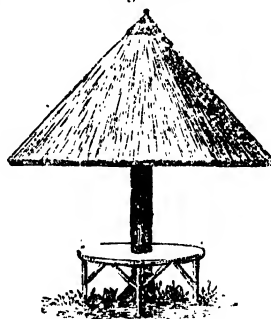
pitched with different coloured pebbles set in concrete or cement, and disposed in a tessellated manner.

Fig. 992 is still more in the rustic style. One-half, which forms the front, is supported upon larch or oak posts, without plinth or pediment. The roof is simply thatched with heath or reeds, and the whole exterior nearly covered with creeping roses, clematis, etc. The whole of the inside is covered with moss of the commoner

kinds. The floor may be clay or dark-coloured concrete.

Fig. 993 is supposed to be built round a living tree, or one whose top has been cut off on purpose. The interior structure of the roof is secured to the stem by having curvilinear ribs radiating from it, and propping up the rafters near their middle, much in the way of an umbrella when opened. The roof, for this reason, is light, and covered externally with heath, and internally with moss, taking care that the ribs are fully shown, and they themselves also covered with moss, or with the bark of some smooth-barked tree. The seat is in the usual rustic style.

Fig. 993



Such resting-places may also be built in the longitudinal form, with a pavilion or hipped roof thatched with heath, which is by far the best, as it is also the most durable, of all coverings. The sides all round are divided into panels, the uprights or supports forming the principals, and the diagonal pieces the subordinate ones. The spaces between, being filled up with larch or oak pieces of half the diameter of the uprights and diagonals, will show the same pattern on both sides. Resting-places of this description are very easy of construction.

Fig. 994 shows the elevation of a very elaborate moss-house in the grounds at Dalkeith Palace. It is now thatched with straw, but was formerly with heath. The roof projects four feet over the walls, forming a piazza or colonnade round the four sides, and is supported in front with oak rustic columns, and curvilinear brackets between.

The floor is laid in manner of a brick floor along the front and ends.

Fig. 894.

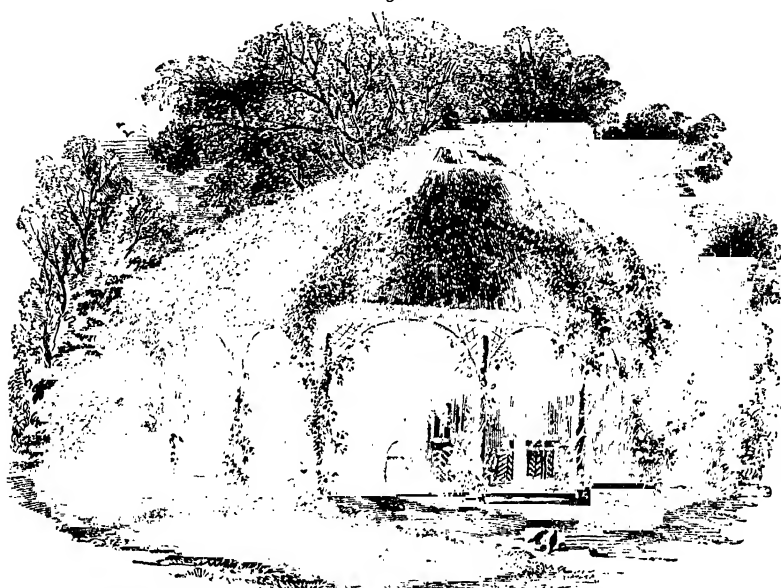
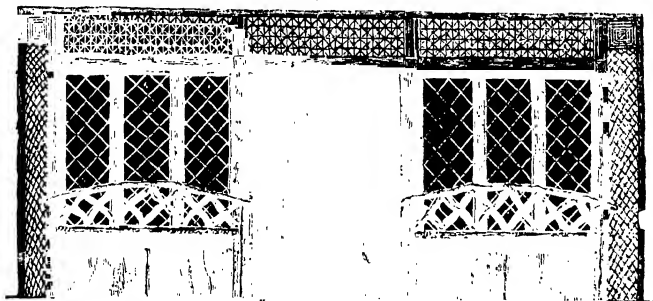


Fig. 995. is an elevation of the front wall under the colonnade,

Fig. 995.

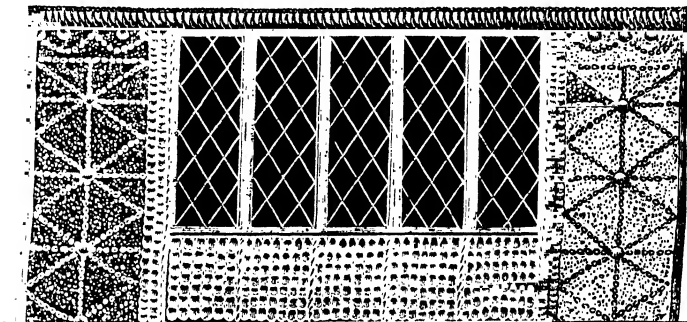


showing the casement windows, of which there are four in the building, the other two being placed one in each end. In front of these two windows are placed two rustic seats with open backs, which protect the glass, and, at the same time, do not much exclude the light. The mullions and frames of these windows are of oak, with the bark carefully preserved. The other parts are, as usual, of lead and iron, the centre part of each opening for ventilation. The door is in two

parts, and simply covered with thick pieces of oak bark on both sides. The door frame is the same as that of the windows. The three panels over the door and windows are inlaid with pieces of oak, each cut into four sections, as are also the margins at the two ends. The roof of the colonnade all round is covered with different coloured mosses within.

Fig. 996 is the elevation of the two ends, showing the position of

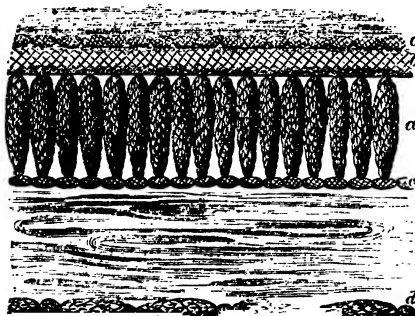
Fig. 996.



the windows. The surface is covered with shells, set in plaster of Paris, those under the windows being oyster-shells, the outer parts being done with smaller ones, found abundantly by the sea-side.

The floor of the interior is of brick, not by any means in accordance with the other parts of the building. The seats are all portable, and consist of a sofa and six chairs, two of which are representations of arm-chairs, hollowed out of the trunks of two old oak trees, very much covered with excrescences; the others are light chairs, formed of hazel, and the seats cushioned with *Polytrichum commune*. The sofa is also cushioned with the same, the back being open wicker-work. The table is circular, set on a clawed stand, and covered with a matting of *polytrichum*.

Fig. 997.



The side walls are all covered with moss. In the centre of the back wall is a representation of a ducal coronet, done in fir cones. The roof is of *Sphagnum palustre*, a white moss; and in the centre is a stag, three-fourths of the natural size (the crest of the Scotts of Buccleuch), done in a very ingenious manner with small rods of young larch. A cornice runs round the interior, formed of spruce cones (fig. 997 a), with

those of *Pinus sylvestris*, or Scottish fir (*c c*), and of both alternately, as at *d*, and square knobs of oak, divided into four sections, as at *b*.

Summer-houses are and may be constructed in a great variety of forms and of different materials. Very neat resting-houses may be formed of four-inch quartering, set upon a base of brick or stone, so as to raise the timbers one foot from the ground. These may be lined on one or both sides with boarding, and that covered with imitation basket-work, or designs formed of larch, oak, hazel, or any other wood, selecting the smooth branches; or, if desired, it may be covered with cones of various species of pines, so arranged as to produce a very pleasing effect. The rough bark of trees—oak, for example—may be used to cover the whole, or the sides may be divided into panels, with pieces of branches or cones, and the panels filled in with smooth or rough bark, according to fancy.

Similar houses may also be constructed, by covering the quartering with lath, and plastering with good sound hair plaster, the surface of which, while wet, may be dashed with clean gravel, pebbles, small shells, scoriæ, spars, etc., sifted so as to be of a uniform size. Shells of various kinds are often used for such purposes, and are stuck in while the plaster is soft, and very pretty devices are often formed by them. As this work requires to be done expeditiously, it is necessary to have the shells sorted and close at hand; and to render the pattern or design as perfect as possible, it should be traced on the plaster first; and this process will be much facilitated, if the pattern is cut out in sheet-iron, thin boarding, etc., which being laid on the plaster, the lines can be traced with great accuracy and dispatch.

Again, great variety of design may be given to the plastered walls. "Lines may be drawn by the trowel, straight, wavy, angular, intersecting, or irregular. Stripes, checks, squares, circles, or trellis-work may be also imitated. Wicker-work is a very general subject of imitation, and this is produced by pressing a panel, generally a foot square, of neatly wrought wicker-work against the plaster when moist. It is evident that this description of ornament might be greatly varied and extended, and that, instead of the panel of wicker-work, wooden plates, of patterns such as those used by room-paper printers, might cover the walls with hieroglyphics, with sculptures of various kinds, with imitation of natural objects, or with memorable or instructive sayings, or chronological facts."—*Encyclopædia of Villa Architecture*.

Such walls may have the appearance of age given them by the process called splashing; but in this case they require to be thoroughly dried, if the splashing is to be composed of glutinous material, or in oil colours, which are by far the most durable. If splashing is to be done in water colours, it matters not whether the walls be dry or not. As a general rule, in splashing or even plain colouring walls with oil colours or with glutinous material, the walls should be thoroughly

dry, and it should be done at a season when they are not saturated with moisture. "The reason for these rules is, that water colours do not impede the evaporation of moisture from the wall, and the absorption by the mortar of carbonic acid gas, by which it is hardened and rendered durable; while glutinous colours, by closing up the pores of the surface, do both."

An Analysis of the British Ferns and their Allies. By G. W. FRANCIS, F.L.S. With Engravings. Fifth edition, revised with Additions by ARTHUR HENFREY, F.R.S., F.L.S., etc., Professor of Botany, King's College, London, and Lecturer on Botany at St. George's Hospital. With an additional Plate of the latest Discoveries. London: Simpkin, Marshall, & Co., Stationers' Hall Court. Price 5s.

WE have had the pleasure in previous volumes to recommend to our readers four editions of Mr. Francis's excellent work on BRITISH FERNS, and we feel much gratified to know that the book has been universally approved of, by the best of tests, viz., the rapid sale of the whole of the last edition, and an increasing demand for a fifth edition to be issued. That want, however, is now amply provided for, and useful and interesting as the previous successive editions were, displaying the admirable capabilities of Mr. Francis for the work he undertook, we are pleased, after carefully examining this fifth edition, to have to assure our readers that its value is much increased by the acquisition of the revision and additions made by one so eminently qualified as Professor Henfrey. All admirers of this very interesting tribe of plants ought to possess this book. Its excellence and cheapness combine to its acceptableness. There are other good and extensive works on Ferns, but *costly*; this, however, contains everything requisite to a knowledge of the plants it comprises. The figures of the *species* are given from well-executed copper-plates, and the *generic character* from wood. We here give a specimen of the work, accompanied with its clear and comprehensive details.

POLYPODIUM, LINN. POLYPODY.

π , many, and $\pi\omicron\upsilon\varsigma$, $\pi\omicron\delta\omicron\varsigma$, a foot; from its numerous roots.)



A, pinnule of natural size of *Polypodium vulgare*. B, magnified section of a sorus. C, front view of ditto. D, longitudinal section of leaf-stalk. E, transverse ditto. F, vernal frond, rootstock, and roots. H, I, theca and spores.

Sprengel enumerates no less than 250 species of this genus; all of them are herbaceous, some a few inches only, and others several feet in height. Inhabitants of most parts of the world, particularly of the islands within the Tropics; several are found on the continent of America, and a few are confined to China. Only four species are British.*

1.—POLYPODIUM VULGARE.

COMMON POLYPODY OF THE OAK. WALL FERN.

(Plate I. fig. 2.)

CHA.—Leaf deeply pinnatifid, lanceolate. Lobes broadly linear, obtuse, somewhat serrated. Leaf-stalk smooth. Rootstock hairy.

SYN.—*Polypodium vulgare*, Tourn., Ger., Park., Ray, Linn., Huds., Lightf., Plum., Swz., Spreng., With., Smith, Hook., Mack., Gray, etc.—*Ctenopteris vulgaris*, Newm., 1854.

FIG.—*E. B.* 1149.—*Flo. Dan.* 1060.—*Woodv. Med. Bot. supp.* 271.—*Ger.* 467.—*Bott.* 18.—*Plu. t. A. f.* 2.

DES.—Rootstock creeping horizontally, at first covered with scales, and numerous stout, branched, hairy root-fibres. Leaf-stalk quite smooth, yellow, void of lobes half-way up. Leaf from six to twelve inches high, lanceolate, scarcely contracting below. Lobes broadly linear, obtuse, and slightly serrated, sometimes wanting the serratures, at others acuminate, while occasionally they are found very much cut and divided. Sori naked, yellow, large, prominent, and arranged in straight lines equally distant from the margin and midrib of the lobe; each sorus terminating one of the branches of a transverse vein. The plant is perennial, and the fruit found throughout the summer.

β. (*P. Cambricum*, Linn.) Leaf ovate; pinnules ovate and deeply cleft. (A, B.)

γ. (*sinuatum*.) Leaf ovate or triangular; pinnules proliferous. (C, D.)

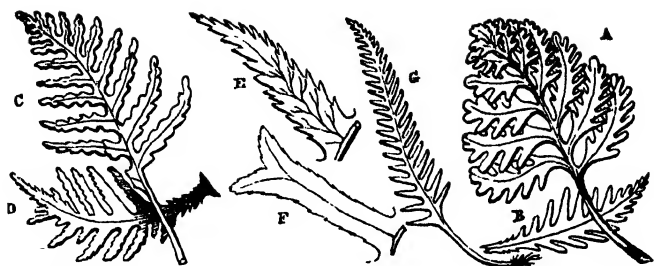
δ. (*serratum*.) Pinnules distinctly and often doubly serrated.

ε. (*acutum*.) Pinnules pointed; leaves long; both narrow. (E.)

θ. (*bifidum*.) Pinnules cleft at the point. (F.)

Mr. Mackay remarks, in his "*Florá Hibernica*," that the Irish plant is somewhat different from the *Polyp. Cambricum* of Linneus. It is in fact our variety *γ*, which is the same as the *Pol. Virginianum* of Pursh, and intermediate between the usual state of the plant and the *Cambricum*; it bears fruit copiously, whereas the real *Cambricum* is usually without fruit, both in its wild and cultivated state. We might expect this, indeed, from the feather-like appearance of the plant, and the dilatation of its lobes, a too great expansion of leaf being here as elsewhere detrimental to the production of fruit. The foregoing observation was made in distinct reference to a frond, of which C, in the annexed cut, in an exact representation; but a plant still more nearly approaching Linneus's *Pol. Cambricum* is in Sir J. Smith's Herbarium marked as from Ireland. A pinnule is represented in the fig. D, copied from the original specimen: an admirable figure of the whole frond, as well as of the *Cambricum*, is in Newman's "*Ferns*," p. 22 (45, ed. 1854). One pinnule of the latter is represented at B, and a whole frond of it, from my herbarium, at A. The other varieties are shown at E, F, and G.

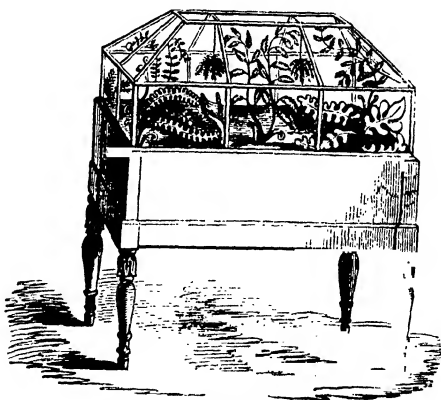
* The number of species in a genus is always subject to variation, particularly in one so extensive as Polypody, as newly discovered plants are always adding to the number, while different classification often divides one genus into many.



VIR.—Although formerly admitted into the Pharmacopœias, it is scarcely, if at all, used in medicine at the present day. It is feebly astringent, of a bitter and nauseous taste, and has been considered efficacious in catarrhal disorders, and against worms, in doses of from one to two drachms of the dried root.

HAB.—The common states of the plant (α and δ) are generally distributed over the United Kingdom, on trees, walls, banks, and rocks.— β . On the rocks in some parts of North Wales, but without fruit. Braid Hall, near Edinburgh, *Mr. Brown*. At Chepstow, Monm., *Sir J. E. Smith*.— γ . Woods at Dulwich (1835), *Mr. Sanders* and *Mr. W. Pamplin*. South Isles of Arran (1806), *Mr. Mackay*. In the Dargle, county of Wicklow, *Miss Pitton*. Innisfallen Island, Killarney, *Mr. Kelly*. South side of King's Park, Edinburgh, *Mr. Brown*.— ϵ . Rocks in North Wales, *With*. Meadows near Maldon, and other meadows near Ewell, Surrey, *M. J. Bevis*. Cobham Park, Kent, *G. F.*

GEO.—Found in most of the middle parts of Europe and North America.



THE WARDIAN FERN CASE.

NOTES FROM KEW.

BY MR. W. S.

CANNA WARSCEWICZII. Nat. Ord. *Marantaceæ*.—Leaves very long, from nine to fourteen inches, of an oval shape; the midrib is a rich purple-crimson colour, the stalk rises from three to five feet high,

and the same colour as the midrib of the leaf. At the summit there is a large truss of bright scarlet flowers, which are exceedingly showy and ornamental. There is a very extensive collection of *Canna* here; many of them are valuable acquisitions to the stove, especially the above species. It succeeds well in a compost of leaf-mould and peat, with a small portion of loam, also a good quantity of silver sand.

BERBERIS BEALII and **B. JAPONICA**. Nat. Ord. *Berberidaceæ*.—These are good species, if they can be called *distinct* species, which I doubt, as there is not distinction enough; however, they are worthy of cultivation. The leaves are pinnate; the first are about nine inches long, the others are not so long, but the colour is darker. The flowers are borne in very large trusses, of a rich yellow colour. The plants have been in a cold pit during the winter, and flowered well for small plants. If they prove hardy they will be a great acquisition to the shrubbery.

TRADESCANTIA FUSCATA. Nat. Ord. *Commelinaceæ*.—Leaves ovate, acuminate, thickly covered with brown-coloured hairs. It is a dwarf herbaceous plant, and from the centre or crown of the plant arise several flowers upon solitary peduncles, about two inches high. The flower is of a beautiful bright blue. It is a very pretty dwarf stove plant, and of easy culture.

DOMBEYA VIBURNIFLORA. Nat. Ord. *Byttneriaceæ*.—It is a large plant, twenty feet high, in the large palm-house. The leaves are large, palmate-shaped. Flowers in trusses, of a light yellow colour. It is only fit for large houses.

In the orchid house the undermentioned are in flower, and diffuse a delightful combination of perfumes; on entering the house it reminds one of the oriental gardens we read of in some interesting works, especially in the morning. There is a noble specimen of *Dendrobium speciosum*, having twelve large spikes of flowers, some of the spikes are nearly two feet long. *D. fimbriatum*, var. *oculatum*. This is a charming species, its bright golden flowers are produced very freely. *Dendrochilum glumaceum* is a very pretty little species, and although the flowers are not very conspicuous, the perfume is very similar to a ripe pear when it is just in its prime. *Oncidium cebolletum* and *O. sphacellatum* are two good species, being very free both in growth and flowering. The colour of the flowers is very brilliant. *Maxillaria picta*, *M. squalens*, *M. Parkerii*, *M. variabilis-lutea*, with some others of less note, all of which are sweet-scented, and very free-growing species.

In the greenhouses the collections begin to wear a lively appearance. The very extensive collection of *Acacias* begin to show their beautiful golden dress, and amongst the best now in flower I may mention *A. affinis*, a plant twenty feet high; its bright golden heads of flowers have a grand appearance. *A. smilacifolia*, flowers light straw colour; *A. mucronulata*, flowers light yellow; *A. uncinata*, flowers of a very bright yellow; *A. suaveolens*, flowers light yellow, sweet; *A. asparagoides*, flowers rich yellow. In addition to the

Epacris I before mentioned, there are *E. impressa*, *densiflora*, and *incarnata*, a very charming variety, the flowers a light carmine. There is a seedling raised here, which is a charming variety, the flowers a very light beautiful pink colour. *E. magnifica*; this, too, is very beautiful. *Camellias*; there are a great number now in perfection, and amongst the best are the following: *Emma*, white; *Imbricata-rubra*, red; *Lecana-superba*, bright red; *Sacca-nova*, flesh colour; *Amabilis*, red; *Sweetii-Colvillii*, pink striped with red; *Elegans*, white; *Prattii*, rose and white stripes; *Eclipse*, white with rose stripes; *Colvillii*, mottled pink striped with red; *Rubro-superba*, bright red; *Imperialis*, white; *Picturata*, rose. All the above should be in every collection.

NEMATANTHUS MORELLIANUS.—Leaves ovate-lanceolate, opposite, of a very dark shining green; from the axil of each leaf arises a peduncle about three inches long, at the extremity is a fine large beautiful crimson-coloured flower. The calyx is of a dark red, and thinly covered with grey hairs. It is a beautiful stove plant, and flourishes well in loam, leaf-mould, and peat, with a good supply of silver sand.

THEOPHRASTA LONGIFOLIA.—Leaves ovate-lanceolate, from sixteen to twenty inches long; they are thickly set upon the summit of the plant, which is about four feet high. Below the leaves the trunk is thickly set with racemes of bright orange-coloured flowers. It is an excellent plant, and merits a place in every stove.

STIFFTIA CHRYSANTHA.—Leaves ovate, undulate. Flowers in dense heads, of a bright yellow colour.

DOMBEYA VISCOSA.—This is a large tree, eighteen feet high, thickly set with large globular heads of white flowers. In the stove.

BESLERIA ARDENS.—Leaves opposite, ovate, serrate. Flowers in corymbs. Corolla tubular, of a bright orange colour. This is a very good stove plant.

LOPEZIA MACROPHYLLA.—Leaves alternate, ovate-lanceolate. Flowers are borne at the extremities of the shoots in profusion, of a bright vermilion colour; it merits a place in every stove. There is a great number of other plants in bloom, but I shall only mention some of the best. The following are excellent: *Gloxinias*—*G. Teuchleri*, dark rose, throat carmine, the outside of the flower having blue stripes; *G. candidissima*, pure white; *G. elegantissima*, white with a blue throat—it is a very fine variety; *G. Eleanor*, white with a rose throat; *G. Eugenia*, light pink, throat white spotted with rose—it is a most excellent variety; *G. Passinghamii*, purple, throat a very dark purple; *G. Maria Van Houtti*, white, throat carmine—it is a charming variety; *G. discolor*, light lilac—the under side of the leaves are of a beautiful crimson colour; *G. Sir C. Napier*, rose, throat deep carmine—a splendid variety; *G. Victoria regia*, white, throat blue, flowers very large, a superb variety; *G. Argyroneuro splendens*, purple, foliage beautifully marked with silvery stripes.

Franciscea Hopeana, *F. hydrangeæformis*, the beautiful *Thrysa-canthus stricta*, with its bright scarlet flowers—really a most charming plant—and the pretty *Canna Indica*, are in fine bloom. There is a

splendid plant of *Maranta sanguinea*, four feet high, with its splendid foliage, and quite loaded with large spikes of scarlet-crimson flowers. I have heard persons complain that they cannot well succeed with this plant, I will therefore give a few remarks, in an early number, on its cultivation. There is also the king of trees in flower, viz., the *Amherstia nobilis*; a noble plant, with long racemes of beautiful flowers and splendid foliage. It should stand next to the *Victoria regia* in estimation. It requires a good strong heat and plenty of moisture, or else the sulphureous gas which arises injures the tops of the young leaves, and causes them to turn brown, and thus injures the growth of the plant.

In the orchid house, amongst the best now in flower, there is the splendid *Vandateres* and the pretty *Acanthophippium sylhetense*, and the charming *Phalænopsis amabilis*, *Phajus Wallichii*, *P. grandifolius*, the charming *Maxillaria sanguinea*, the sweet-scented *Bolbophyllum umbellatum*, and the sweet *Octomeria teretifolium*.

In the greenhouse there is too great a number of plants to be mentioned now, so that I shall confine myself to the best amongst the *Acacias*. *A. celastrifolia*, one of the very best; *A. riceana*, flowers light yellow; *A. lineata*, bright yellow; *A. Drummondii*, the best of all; *A. rotundifolia*, bright yellow; *A. floribunda*, light yellow; *A. cynosum*, bright yellow; *A. grandis*, deep yellow; *A. diffusa*, light yellow; *A. macronulata*, light yellow; *A. uncina*, rich yellow; *A. cultri-formis*, deep yellow; *Polygala ligularis*; the pretty *Bossiaea cordifolia*, *Chorozema cordata*, *C. elegans*, *C. flava*, *Pomaderris lanigera*, *P. elliptica*, *Ziera macrophylla*, *Barosma dioica*, *Selago distans*, *Hovea purpurea*, *H. ferruginea*, *Pultencea subumbellata*, *Platylobium formosum*, *Boronia anemonifolia*, and a pretty Cape bulb, *Lachenalia tricolor*.

Numerous are the Alpine plants in bloom out doors; amongst the best are, *Draba cuspidata*, bright yellow, flowers growing four inches high. *D. aizoon*, flowers yellow, three inches high. *Cardamina trifolia*, leaves very dark green, flowers white, six inches high. *Arabis albida*, flowers white, about six inches high. *Primula denticulata* is a very pretty plant; the peduncle is about five inches high, with a large globular head of lilac-coloured flowers.

MISCELLANEOUS.

ESSENTIAL PROPERTIES OF FLORISTS' FLOWERS.—Having been an exhibitor at floral shows for many years, and aware of the necessity of a uniformity of taste amongst all the societies of florists, I have sent the following, being *rules* framed for the local Society to which I belong, and by which the flowers exhibited are adjudged, in hopes of their being useful to other societies, and if any improvement can be suggested by the reader, I shall be glad to see such particular in an *early* number of this Magazine; also on any other flowers not included in my list, but which it is considered ought to be added thereto,

in order to have the rules as perfect as possible. Such rules will not only be useful to judges at such exhibitions, but will be a guide to the amateur florist as to his purchasing what are of approved merit.

"Hyacinths.—A fine Hyacinth should be of a compact pyramidal form, strong stem, supporting numerous large bells in a horizontal position, the uppermost bell erect, the bells rather convex than flat or hollow; the colours clear and bright. Those flowers presenting a contrast of colour in the centre of the bells are most esteemed; only one stem is allowed to each bulb when exhibited for show.

"Auriculas.—The pips should be large, flat, and round, with ground colour equal on every side of the eye, which should be quite circular, *as well as the edge.* The tube a bright lemon-yellow, perfectly round, well filled with the anthers or thrum, the eye round and large, the body colour black or violet, the meal fine; the colour, in green-edged flowers, should be a whole one, not a shaded green. The stem strong and sufficiently long to bear the truss above the foliage—the truss to consist of not less than five full-blown pips; only one stem allowed.

"Polyanthuses.—The pips large, flat, and round, with small indentures between each division of the limb, dividing the pip into heart-like segments, edged with bright yellow; the edge and the eye ought to be of the same colour; the truss to consist of not less than five full-blown pips, supported on a strong stem, standing well above the foliage.

"Tulips.—The flower large, and composed of six petals; these should proceed horizontally at the base, and then turn upwards in the form of a goblet—rather widest at the top. The three exterior petals larger than the interior ones; the edge of the petals well rounded, or with a little indenture at the top. The ground colour of the flower at the bottom of the cup perfect white or yellow; and the various colours, whether stripes, flames, feathers, or blotches, should be very fine, regular, or bold and distinct, or else elegantly pencilled.

"Anemones.—A fine flower should be two inches and a half in diameter; the exterior row of petals should be large and well rounded; the centre of the flower well filled up; the bloom of a hemispherical form; colours clear and distinct.

"Ranunculuses.—The flower ought to be two inches in diameter; the lower tier of petals broad, and gradually diminishing in size as they approach the centre, which should be well filled up with them. The bloom ought to be of a hemispherical form; the petals not widely separated, nor too close to appear crowded, and to have a pyramidal direction, in order to display their colours; petals broad, with perfect edges; colours rich, clear, and brilliant, or if of two colours, clear and distinct.

"Pinks.—The petals large and well rounded; edges free from notches; the colours distinct and clear. In laced Pinks, the lacing must be continued round every petal without a break; in *plain*

Pinks, the colouring should be confined to the centre, and no portion on the edge of each petal; in rose Pinks the dark colour ought, as in laced Pinks, to be continued, without a break, round every petal.

"Carnations.—The flower large, consisting of a number of well-formed petals, neither so many as to give it a crowded appearance, nor so few as to make it appear thin and empty; the petals broad and stiff; the guard one well rounded, and should rise a little above the calyx, and then turn off gracefully in a horizontal direction, supporting the interior ones, which should gradually taper towards the crown. Bizarres must have three colours in every petal; flakes two; colours strong and bright; the stripes clear and distinct; the fewer freckles or spots the better; all the colours nearly equal, or the most brilliant colour should predominate; the white pure and bright.

"Picotees.—The same qualities as to size, petals, crown, and clear white ground, as the Carnations; edge of petals smooth and well rounded. Those flowers which are free from blotch or stripe down the petal, below the coloured edging, are greatly to be preferred to those which are marked and pouncy.

"Dahlias.—A fine flower should be of a perfectly circular form; the outer petals stiff, well rounded and cupped—not too much so as to present a quilled appearance—and well filled up to the centre, not in the least degree showing the eye; neither should the eye be at all sunk or flattened, but rather elevated above the other parts when in full bloom; the whole flower presenting a true circle when viewed above, but of a hemispherical form when observed at the side. Those flowers possessing two colours to have them clear and distinct."

BRIEF REMARKS, &c.

TO DESTROY ANTS.—Having read complaints against ants, I am induced to send you the following:—Some time ago, a drawer, in which I kept some sugar, was so much infested with ants, that we were obliged to remove the sugar from it. It happened, from some cause or other, a small bit of camphor was laid in the drawer, and on opening it a few days afterwards, we were agreeably surprised to find the bottom literally covered with dead ants. This induced us to try the experiment, and from that time we have kept the sugar free from their depredations without any difficulty, by allowing a small piece of camphor to be in one corner of the drawer. Where trees upon walls, or plants, are infested, I should recommend small pieces of camphor to be thrown on the ground round their stems, and in some cases to dissolve a little in alcohol and sprinkle it over the leaves, in a diluted state, with a common syringe.

SUPERPHOSPHATE OF LIME AS MANURE.—A remark, worthy of your particular attention, and those who receive foreign seeds, is made in the Horticultural Society's Journal, that if a small portion of superphosphate of lime is mixed with seeds when sown, in sufficient quantity to give them the appearance of being lined over, the seeds germinate quicker and stronger, more especially in the case of old seeds; and also that the plants are less liable to damp off, or be injured by insects. Try it. From some experiments we have made, we have no doubt that this substance will be found to have peculiar influence in causing an early and abundant formation of roots, and if a small portion be sprinkled in the soil into which shrubs or trees are transplanted, it will be found of much utility in preserving life.—*P. Robertson.*

LARGE COCKSCOMB (*Celosia cristata*).—Not having seen any accounts of large Cockscombs during the past twelve months, I herewith send you the dimensions of one I grew last year, of the tall sort. The height of the plant to the bottom of the flower from the surface of the mould, two feet six inches, height of flower sixteen inches, total height three feet ten inches, length of flower over the crown, from one point to the other, two feet, and one foot ten inches across; and if the flower had been laid upon a board, and each convolution of the flower straight along, it would have measured upwards of forty-four feet and a half. The compost in which it grew was maiden loam, rather sandy, and the old dung of a mushroom bed, rather more than one-half. I had several more, none of which measured below seventeen inches, and one in particular, of the dwarf sort, eighteen inches high from the mould, had six flowers. None of them was below eight by four; the largest was sixteen by eleven inches. I have some of the flowers retaining the colours as bright as they were on the day they were cut, although not so large.

THE WEEPING WILLOW.—It is said that the Weeping Willow was introduced by Pope, and that the celebrated tree which stood in the poet's garden, at Twickenham, was raised from a cutting, forming part of a basket or package sent from Spain. On the arrival of the basket, Pope observed apparent life in some of the twigs, which he accordingly planted, adding, "perhaps they may produce something we have not in England." From this sprig sprang up one of the finest specimens in this country, celebrated as the "Poet's Willow," which soon became the grandsire of thousands.

KEW GARDENS.—In the estimates of civil contingencies for the financial year 1855—56, there are two items—one of £13,569 for the Royal Botanical Gardens at Kew, and another of £1544 for the Royal pleasure-grounds at the same place, making a total of £15,114. Sir W. J. Hooker's report on Kew Gardens for the year 1854 is appended to this estimate, and a few particulars may be extracted from it for the information of our readers. Sir William shows that the number of visitors annually is constantly and steadily increasing, the number in 1854 having amounted to no less than 339,164, against 9174 only in the year 1841. In 1843 the number of visitors was 13,492; in 1844, 16,114; in 1845, it increased to 28139; in 1846, to 46,573; in 1847, to 64,282; in 1848, to 91,708; in 1849, to 137,865; in 1850, to 179,627; and in 1851 (the Great Exhibition year), to 327,900. In 1852, the number fell to 231,210, but in 1853 it again rose to 331,210. The great increase in the year 1853 is to be ascribed to the Sunday admission. The number of persons who visit these beautiful gardens for study and instruction (especially artists) has increased in the same proportion, and to various Government schools of art and design supplies are continually sent from the gardens for the use of their pupils in London. In novelties and rarities the gardens have received as many additions as in former years, and the augmentation of the collection compels Sir W. J. Hooker to ask for more accommodation to the greenhouse plants from temperate climates, and especially those of a large size, such as scarce tender pines and Australian trees and shrubs. The pleasure ground adjacent to the garden, occupied for the last four years as an arboretum, devoted to all kinds of foreign trees and shrubs that will bear our climate, has its growing attractions. The rough ground bordering on the Sion Vista has been levelled and formed into a lawn; the planting is finished, and a large number of the trees and shrubs have been labelled with the names of the genus and species, in Latin and English. The Museum of Practical or Economic Botany has prospered, and is a source of usefulness as well as gratification to our merchants and to scientific persons. Not a day elapses without the receipt of applications for information about the useful woods, oils, fibres, gums, resins, drugs, and dyestuffs of which the stores and greenhouses contain the living sources, and the museum the products, all authentically named. A new feature in connection with the Royal Gardens remains to be noticed. This is the presentation in 1853 and 1854 of two valuable libraries and herbaria, by the sister of the late Dr. Bromfield, of the Isle of Wight, and Mr. George Bentham, of London. Till 1853 the garden was utterly destitute of these two very necessary, if not indispensable appendages. Both are now available, under proper restrictions, for the public service, and are accommodated and conveniently arranged within the precincts of the garden. The benefits of this arrangement have already been experienced by botanists, students, and persons of all grades. Among the more important contri-

butions to the library in 1854 may be mentioned a splendid collection of drawings, given by Miss Cathcart, made in India under the direction of the late Major Cathcart; a set of 2188 drawings of Kew plants, presented by Mr. W. Attwell Smith; and the entire botanical correspondence of the late Dr. Wallich, during his twenty-eight years' superintendence of the gardens at Calcutta, bequeathed by the learned doctor to the gardens. Visitors of all grades, reports Sir W. Hooker, evince by their generally good conduct their thorough enjoyment of the gardens. To our own colonies the books show that they have contributed extensively, by the dispersion of useful plants and trees in climates suited to their growth, wherever our trade and commerce reach.

CAMELIAS FOR STOCKS.—The *Camellia reticulata* you will find *very eligible* for this purpose, on account of its strong growth. It is a kind, too, that succeeds better itself if grown upon its own roots, the stocks upon which it is worked being considered incapable of supporting it in vigour.—*J. B.*

LAPAGERIA ROSEA.—Amongst the very interesting notices of good plants by Mr. Prestoe is the *Lapageria rosea*. Knowing that this lovely plant is becoming a general favourite, and having grown, flowered, and exhibited one, I thought it might be interesting to some of the numerous readers of this useful Magazine to be informed that this fine plant has seeded in this country. I succeeded in raising a few pods of seed in 1853, which remained on the plant *all winter*, and ripened in the last summer. I immediately sowed a portion of the seeds, which to my joy, have vegetated, and afford me the prospect of securing plants. The seeds are of a globular form, and semi-transparent.—*Amicus, Rosemont Gardens, near Liverpool.*

THE CROCUS.—There are curious phenomena exhibited in flowers, by the expansion and contraction of their parts of fructification, yielding protection from wind and rain, and the dews of the night. The Crocus is constantly influenced by atmospheric changes, and may also be acted upon in a similar manner by artificial means. The following results, among others, arose out of experiments to which the Yellow Crocus was submitted, in the spring of last year. The flowers, having been gathered at night, when their corollas were perfectly closed, were placed at the distance of nearly a yard from two lighted candles, and in a temperature of 50 degrees of Fahrenheit's thermometer. In this situation and warmth they remained two hours, but their petals remained nearly closed. Other flowers were gathered at the same time, and being entirely excluded from light, were submitted to a warmth of 95 degrees; the temperature being very gradually raised from 65. Their continuance during two hours in this situation occasioned but very little change in them. Others were also gathered, and placed between two lighted candles, at about four inches from each, and in a temperature of 70 to 75 degrees. These flowers, in rather less than an hour, were as fully expanded as in the mid-day sun.

FLORAL OPERATIONS FOR MAY.

THE pits and greenhouse now offer the parterre their winter-stored plants, which are already commencing their growth, and are eager to breathe the pure air. Caution must, however, be exercised in being prepared for *occasional frosts*, with some *protection* at night in case of need. If your plans are not yet fully arranged as to bedding out, etc., lose no time; particular attention should be paid in contrasting the colours, to give a good effect. A flower-garden may be richly furnished with plants, but be very ineffective if the colours are badly arranged. For producing a brilliant effect in masses, reject particoloured flowers; only use pure and decided colours, such as scarlet, pure white, deep purple, bright yellow, etc.; those which are in close affinity kill each other. Take care not to mix plants which are of *doubtful duration*, when in bloom, with those of a more *permanent character*, remembering always that the beauty of a formal flower-garden depends upon its being in all its details a perfect work of art, in which no blemish should occur. There must be high keeping, symmetry, judicious arrangement of colours (traceable to fixed principles), or it will not form a satisfactory whole. This should be particularly attended to. Many persons plant their stock so *thinly*, that

their beds are not covered till late in the season; we advise *thick planting*, both for speedy and permanent effect.

When annuals are required for late flowering, they may yet be sown; and hardy annuals that have come up too numerous should be thinned out, so as to retain but enough to be vigorous. Tender annuals, raised in pots or frames, should be taken, with as much soil to the roots as possible, and *after the middle* of the month be planted out. After all planting is done, the next operations will be training and pegging down the plants; this is a most important process towards having well-furnished beds. Climbing plants will now require training from time to time, according to their growth.

FLORISTS' FLOWERS.—Among these we may class the *Antirrhinum*; many of the kinds now in cultivation are exceedingly pretty, and deserve to be grown. Now is the best time to plant them out. *Carnations* and *Picotees* are by this time in their blooming pots; and as they advance in growth, attention will be necessary to stick and tie them up neatly. Stir up the surface-soil of the pots, and add a dressing of mixed loam and well-decayed dung. *Cinerarias*.—As these go out of bloom cut down the stems, which will induce an abundance of shoots for increase, and turn them out into the open ground, where they are partly shaded. *Dahlias*.—The *last week* in the month is as early as it is safe to commence planting out. The young plants will be greatly strengthened by repotting them into larger pots, giving all the favourable air possible, in order to have them hardy when turned out. *Fuchsias*.—Repot and trim all the plants required for specimens; encourage their growth by frequently syringing them over head. *Pansies*.—Cuttings put in last month may now be planted in a shady bed, for summer blooming. A good watering in dry weather will be necessary. Such as are grown in pots, for show, require particular attention, and by thinning out the side shoots, much finer blooms may be had. *Pinks*.—As the blooming stems advance they will require thinning out. The more robust and very double kinds should have two or three stems left. *Ranunculuses*.—If dry weather continues, water must be liberally supplied; apply it between the roots and not over the foliage, and use rain-water if possible, preferring evening for the operation. *Tulips*.—The top cloth should at once be got on, and never let the sun reach the flowers after they show colour, but give all the air possible.

FORCING FRAME.—Continue to strike cuttings of stove and greenhouse plants, and pot off such as are struck. Plants intended to be flowering specimens for the greenhouse, such as *Achimenes*, *Gloxinias*, *Gesnerias*, etc., should be grown here, and brought forward as rapidly as practicable. What are termed greenhouse annuals, as *Balsams*, *Cockscombs*, *Salpiglossis*, *Rhodantke*, *Thunbergias*, etc., should be got on quickly. A strong stimulating soil, copious waterings, and ample pot-room, together with bottom heat, are inseparable necessities to their successful cultivation.

GREENHOUSE, ETC.—A free ventilation is of importance, and by closing with a humid atmosphere early in the evening, a vigorous growth will be best promoted. Give liberal shifts to such plants as now require it before the roots become matted; much injury is often done by deferring until a general shifting. Camellias, such as have formed their flower-buds, should be placed in a sheltered and shady situation out of doors. *Ericas* should have the ends of their shoots pinched off, to render them bushy and spreading. Climbing plants should be neatly tied as they advance in growth, and abundance of flowers will be the result. Shrubby plants of weak growth, and which naturally make *long frail shoots*, are much improved by bending down the branches, and fixing them to a wire attached to the rim of the pot; in this manner the nakedness of the plant as its base is hidden, and the check imposed on the ascent of sap will induce an increased supply of shoots. Azaleas, when done blooming, *promote their growth*.

Pelargoniums.—Never allow the plants to flag, or the bottom leaves will turn yellow, and the plants then become naked. Put cow, horse, and sheep-dung in equal parts, with a sprinkling of quick-lime, into a tub, and to one peck of these add five gallons of rain or other soft water. When taking it for use, draw it off clear, and give the plants a watering twice a week. Give air freely, shut up early, and syringe the plants overhead three times a week, till the flowers expand. Fumigate to keep down green fly.

WATERING.—See the *entire ball* is made moist. A few holes made by means of an iron pin down through the ball will admit water into the interior.



The Floricultural Cabinet

JUNE, 1855.

ILLUSTRATION.

DIPLADENIA HARRISII.

THIS exceedingly handsome flowering plant is a native of Trinidad, a West India island, where it was recently discovered by Mr. Purdie, the curator of the Botanic Garden in that island, growing on the banks of the Caroni. Mr. Purdie, who was previously in the Royal Gardens at Kew, sent plants of it there, and in describing it stated, "this fine plant is not surpassed by any one of its congeners, whether we consider the size, beauty, and *fragrance* of its flowers of metallic lustre, or its entire habit." It is a shrubby, climbing, branching plant, flourishing admirably in a stove, or warm conservatory, being *exceedingly ornamental*; each leaf is from ten to fifteen inches long. The flowers are produced in *terminal* as well as *axillary* racemes, each containing from eight to ten of its noble blossoms. We saw it in bloom last autumn, at Mr. Veitch's Nursery, Chelsea. It blooms very freely, and highly merits a place in every collection of stove or warm greenhouse plants. The flowers contrast beautifully with those of the other species of *Dipladenia*, as well as *Echites*. The general appearance of the flowers of which are very similar, as *Dipladenia* is derived from *διπλος*, *duplex* (double), and *αδην*, *glandula*, referring to the *two* nectarii-glands in each blossom, whilst those of *Echites* have only *one* such gland, from which circumstance a new genus was formed from what had previously been called *Echites*.

The *Dipladenias* are easy of cultivation, more particularly so when grown in pots, as a valuable correspondent has so well described in the following observations. In our climate, the character of these plants renders the adoption of *pot culture* essentially necessary, in order that the new wood may be *properly matured* in glazed structures, and kept portable, for the greater convenience in their management. They are, notwithstanding, sufficiently hardy to bear with impunity a considerable amount of cold when in a "dormant" state, but to grow this tribe of plants successfully, a com-

paratively high temperature is decidedly necessary. Much of the success depends upon the marked season of rest, for it is not merely the periodical rest of winter these plants require; they have, like animals, their diurnal repose, therefore night and its accompanying refreshment is as necessary to them as it is to ourselves; for in all Nature the temperature of night falls lower than that of day, therefore at that time the perspiration of plants is stopped, no digestion of food takes place, and instead of decomposing carbonic acid by the extraction of oxygen, they part with carbonic acid, and rob the air of oxygen, thus deteriorating the air at night, but not to the same extent as they purify it during the day; therefore, to meet with the wished-for success, the temperature of night should be kept lower than is usually practised among plant-growers, and a temperature varying from 85 to 90 degrees during the day. When these plants are in "active growth," they also at this season require a very humid atmosphere, or the leaves are soon disfigured by the innumerable punctures of a host of insects, which are certain to attack an "unhealthy plant," and thence spread all over those that may be near. This genus can be propagated in two ways. The first and most successful way, which I have always practised, is by taking the small tubercles of the roots, and potting them in the same way as young plants, taking care to keep the crown of the tubercle just above the soil, and plunging the pots in a moderate hot-bed, covering them with a hand or bell glass till they push; after that period the glass may be removed. The second way of propagation is by taking off, as early in the season as it is possible to procure the young wood of sufficient length, pieces having three or four joints, such being the best. They must be cut quite from *their origin*, so as to retain a small portion of the parent stem at the base of the cutting, or, as it is technically called, "a heel;" these being squared off with a sharp knife, and the lower leaves removed, the cutting is ready to be inserted in the pot, which should be filled to within an inch of the rim with very sandy peat and silver sand mixed thoroughly, filling up the remaining space with pure sand; in this the cuttings are to be placed at a distance of about an inch apart, and when the pot is filled, dip it carefully in a vessel of water till the water is evenly over the surface of the sand; then draw the pot out quickly, and the passage of the water downwards draws the sand so tightly around the cuttings that the air is quite excluded; a point of the utmost importance in all kinds of propagation. Cover them with a bell glass, and plunge the pot to its rim in a steady bottom heat of 80 degrees, taking care to shade them from the strong sun-light, and to supply them moderately with water, till, in three or four weeks, they will have protruded roots sufficient to warrant their removal into separate pots. The treatment through the second stage very closely resembles that of mere cuttings; they should be potted in sandy peat and good decayed leaf-mould, adding a sufficient quantity of silver sand to keep the whole porous. They should at this period be kept in a close frame,

at a temperature of 70 to 75 degrees, maintaining about them a close humid atmosphere, with a liberal application of water, and shading the glass to reduce the heat, rather than by the admission of the external air, as the exhaustion caused by the influx of a dry atmosphere would be more than the plants in their present delicate condition could bear. If the first part of the season has been taken advantage of to proceed thus far, the young plants' future progress will be rapid, and by the end of summer they will have thoroughly established themselves, and by a few weeks' exposure to a liberal aëration, will become ripened, and in a fit state for winter. This is perhaps the most trying period in the whole history of the plants; they will require to be kept just cool and dry enough to prevent any attempt at renewed growth, and yet so warm as to be in full vigour, and in a condition to start with energy on the first application of the usual stimulants. The best period for renewing the action will be the middle of January; repot them, and again place them in a brisk heat, about the same as that in which the cuttings were stuck; here they will grow with rapidity, but great care must be taken to prevent the young shoots becoming massed together; for if they are suffered to do so, it will cause a deal of trouble, besides the chance of twisting the shoots, which at this period are very tender. They should, therefore, be looked to every day, letting them ramble where they like till the end of March, when repotting will be again necessary. After this operation, the trellis most suitable for these plants should be placed to them, carefully training the young shoots at equal distances from each other. The trellis I have found most suitable for this tribe of trailers is a "conical-shaped;" it is the best suited for displaying their magnificent flowers. The plants may then be removed to the stove; where bottom heat can again be supplied, with a little more elevated humid atmosphere. About the beginning of June the plants will begin to show bloom, and their fine flowers will amply repay the cultivator for all attention given.

When the plants are in full bloom it will be advisable to remove them into a somewhat cooler temperature, which will prolong their beauty and likewise tend to prepare the plant for winter rest. Some difference appears to exist in the opinion of botanists as regards the limits of this genus, and an allied one, called "*Echites*," has at present defined the species of *Dipladenia* to the following. *D. splendens*, which was introduced in 1841, from the Organ Mountains, and is more generally cultivated than any other member of the genus, on account of its producing such lovely rose-coloured blossoms, very large in size. The second is *D. crassinoda*, introduced from Rio Janeiro in 1842; flowers a brighter rose than *splendens*, but smaller in size. The next is *D. atropurpurea*, from Brazil, in 1842; flowers a dark purple. The fourth is *urophylla*, introduced in 1847 from Brazil, having deep salmon flowers.

The following are called *Echites* by some cultivators, and *Dipladenias* by others: viz. *nobilis*, *suberecta*, *Wagneriana*, *nigricans*, *Rosa-campestris*, *Pellierii* or *flava*, *aucubæfolia melaleuca*, or *picta*, *bicolor*, *peltata*, *spicata*,

or *Forsteronia*, *paniculata*, *hirsuta*, *nutans*, *sinensis*, *Francisceae*, and *nobilis-grandiflora*. Some of them are of recent introduction, particularly ornamental and beautiful. They all merit a place in every collection, being very distinct, and form handsome plants when coiled round a cylindrical wire trellis, or pillar.

It may be interesting to our readers to know that this genus belongs to the Natural Order *Apocynaceae*, the genera of which are generally tropical, throwing out a few representatives only, such as *Vinea* and *Apocynum*, in northern countries. They appear to be most abundant in the hot parts of Asia, and less common in the tropics of America, and very limited in Africa. They are in many cases venomous and very generally to be suspected, although in some cases they are used medicinally, and in others have an eatable fruit. Among the true poisons, *Tanghinia venenifera* stands foremost; the kernel of the fruit, although not larger than an almond, is sufficient to destroy forty people; and from a species of *Echites* the Mandingoes are said to smear their arrows, as it is the most deadly poison. In general this genus is narcotic, but with considerable acrimony, whence the species are employed, especially their roots, as drastics and epispastics. *Aspidosperma excelsum* is, according to Schomburgk, remarkable for its trunk growing from the lower part into tubular projections, forming cavities, which serve the Indians as ready-made planks, and in the construction of their paddles; the trunk appears as if fluted, or rather as if it consisted of a number of slender trees grown together their whole length. The sages of Ceylon having demonstrated, as they say, that Paradise was in that island, and having therefore found it necessary to point out the forbidden fruit of the garden of Eden, assure us that it was borne on a species of this genus, the *Divi Ladner* of their country, and probably *Tabernamontana dichotoma*. The proof they find of this discovery consists in the beauty of the fruit, said to be tempting in the fragrance of the flower, and in its still bearing the marks of the teeth of Eve. Till the offence was committed which brought misery on man, we are told that the fruit was delicious; but from that time forward it became poisonous, as it now remains.

REMARKS ON THE CLIANTHUS PUNICEUS.

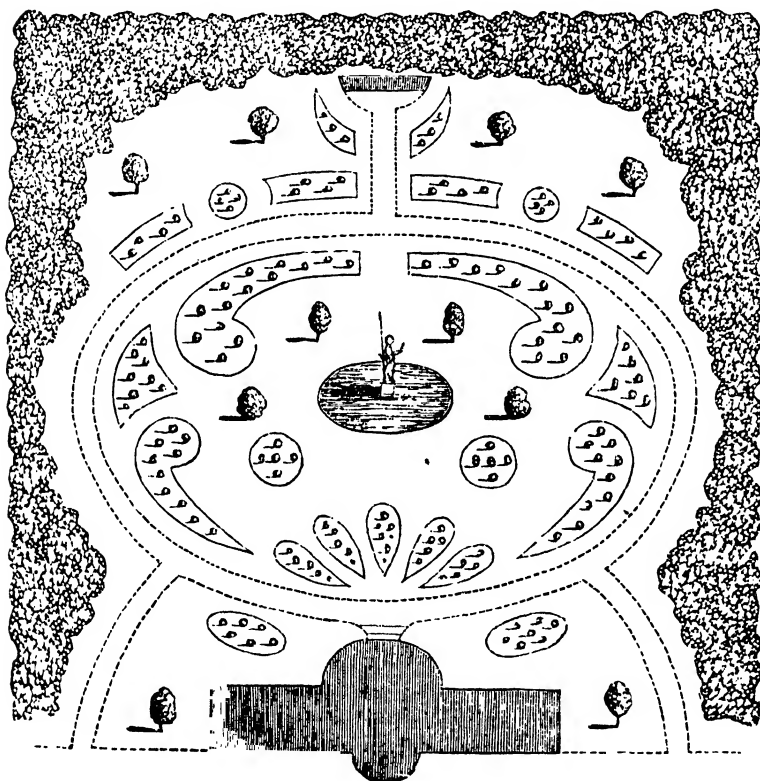
BY MR. CHARLES HARRIS, WITNEY, OXON.

FLOWERS are said to be the alphabet of angels, whereby they write on fields and hills mysterious truths, fitting for mortals to learn—truths that speak to the inmost heart of the PERVAIDING SPIRIT that governs all things.

Being myself an ardent admirer of those favourites of nature, delighting in their presence at all seasons, and having at the present time (April) a fine specimen of the above-named plant—covered with its rich clusters of pendent, crimson blossoms—exciting the admiration of all beholders, I am induced, by its striking appearance, to recommend it for window adornment. When it is supported to

the height of three or four feet, and then allowed to *fall*, nothing can surpass the beauty of its *drooping shoots*, adorned with green and graceful foliage, imparting a freshness to the imagination during the winter months, and by its comparatively easy culture amply repaying for their attention all who may possess it, and causing them to admit that it is justly entitled to the name given by its discoverer, Solander—"FLOWER OF GLORY."

DESIGN FOR A FLOWER GARDEN. BY T. RUTGER, ESQ.



10 01 70 ft.

THE accompanying design is intended for the frontage garden of a

conservatory. It will be perceived that the clumps are meant to be on grass, and that there is a seat intended to be placed at the further end, or where an alcove may be erected.

REMARKS ON THE CASSIA CORYMBOSA.

BY MR. JAMES MAYOR, OF SUMMERFIELD HOUSE, BOWDON, NEAR MANCHESTER.

THIS is amongst the best of our autumn-flowering greenhouse plants, for, in addition to its being a free bloomer, its colour differs from the majority of those that flower about the same season, therefore affording a strong and beautiful contrast, and contributing largely to the harmony of the whole.

Although autumn or early winter is the time at which it usually flowers, yet it may be had in bloom before and after the time specified, if such be required, by facilitating and *vice versa*. It is of long duration, and the flowers retain until the last (under proper treatment) that brightness of colour by which they are so particularly characterised.

PROPAGATION.—The method that we adopt is as follows:—In the month of March we cut down the old plants to within two or three eyes of the last year's wood, at which time also the said shoots are cut into lengths, varying from two to four inches; they are then put round the edge of a pot, in a mixture of sand and peat, and plunged into a bed of slight bottom heat, shaded when required, of course. When sufficiently rooted for removal, they are put singly into five-inch pots, the compost used being equal parts of loam, leaf-soil, and peat; they are then transferred to some close and shady part of the greenhouse or other such convenient place, until they become established in the pot, when they are gradually exposed to the full influence of the sun's rays. We keep the plants growing by repotting occasionally, until about the end of August, when they are allowed to become pot sound. This induces them to throw out flowers freely; but, by way of compensation for this sort of curtailment of space, we supply them liberally with weak liquid manure. Throughout the growing season we syringe them frequently, which we find to be of the utmost importance, not only as a preventive against the appearance of red spider or other such pests, but to keep the foliage and plant free from dust and the like, which, without this precaution, would necessarily accumulate to a degree highly injurious to the plant. One grand point in the culture of this plant, we find, is having the wood strong and well ripened previous to starting the old plants into growth. This we know is applicable, to a certain extent, in the case of most plants, but particularly so in this.

When the plants are cut down a drier course of treatment is pursued, until the plants start fairly into growth, at which time

every means must be used to facilitate the production of luxuriant shoots, which will ultimately produce proportionably fine flowers. Under all the different stages of development they are kept contiguous to the glass, for the simple reason of preventing them from becoming "drawn," or, according to our common style of phraseology, "leggy." Plenty of room is allowed, as they have the greatest antipathy to being crowded.

PROPAGATION OF ROSES BY CUTTINGS.

BY MR. MARTIN, GARDENER TO MISS M. A. STONE, MAYFIELD,
SUSSEX.

ALL rose-growers agree that it is advantageous to have plants on their own roots (as it is usually termed), but with some kinds difficulties have arisen in obtaining such plants, as well as in attempts to propagate them. I have been very successful in raising numerous kinds by cuttings, and therefore forward the process adopted, that others may derive similar advantages.

Early in October I take off about five inches of the tops of the shoots, which have good plump buds, cutting each *close under a bud*, and insert them in equal parts of sand, loam, and leaf-mould, in pots; they are placed under a wall where they can be kept from sun, and be just moist. Towards the end of November they are removed into a frame, where the temperature is about fifty degrees, and the buds soon begin to push forth.

They now require to have all the air possible in mild weather, only protecting them from *frosty air*. They soon push roots, and when the new shoots are about an inch and a half long I uniformly find the cuttings are well rooted; I then pot them off singly, or as may be required, plant them out in the open ground at the proper period.

Plants raised at *this time* (October) will make nice specimens the following summer, and bloom most satisfactorily.

The like results in striking cuttings may be accomplished by taking off cuttings in April; but, of course, such plants do not bloom the following summer, but are excellent for the next year.

I find all the *Bourbon* Roses strike very readily; the *Noisettes* also, and many of the *Perpetuals*. In order to make the plants *bushy*, it is necessary to stop the leading shoots, to induce them to push lateral ones. I now (December 26th) have some which were put in (cuttings) on the 13th of October, and each is pushing forth as strong side shoots as old-established plants.

THE PLEASURES OF FLORICULTURE;

WITH REMARKS ON DIVIDING THE FAMILIES OF PLANTS, AND
CREATING NEW GENERA FROM THEM.

BY J., OF JERSEY.

THE love of flowers, and of their culture, has been very great in me from my childhood. It was imparted to me by my good Aunt Mary, who was considered as having always the prettiest, most healthy, and best-looking flowers in Jersey; except, perhaps, those rare sorts which were then cultivated in the few greenhouses which there were at that time in the island. Her garden was, from early spring until late in the autumn, replete with the enlivening blossoms of the beautiful objects of her care. To the pleasing occupation of out-of-door culture she added another, in which she took much pleasure, and which is now called *Window-gardening*. In this she certainly excelled; her windows looked as if there had been spread over them a screen of various tints of cheerful green, over which some fairy hand had strewed fragrant blossoms of the fairest hues in the utmost profusion, which, whilst impervious to the ardent ray of the mid-day sun, readily admitted every zephyr, fraught with perfume, into the cool interior of the rooms. The plants which produced these pleasing effects were then called *Geraniums*.

I was removed for a time from my pleasant home for the purposes of education, but I carried with me and retained the love of floriculture, which had been so early implanted in me. I continued to look on my old friends, the *Geraniums*, with undiminished, perhaps increased pleasure; and on my return home some years afterwards, having a little time on my hands, one of my principal sources of recreation was the growth of flowers. A little success in this had the effect of putting me in communication with regular amateur florists, from whose experience I derived most important benefit; but, when talking one day with one of them about some of my favourite *Geraniums*, I was mortified by his telling me that they were no longer called by that name, and had been replaced by that of *Pelargonium*, but he could not tell me for what reason. Another friend, more learned and versed in the recent changes, informed me that the name of *Geranium* was preserved, but that it had been divided into two genera, *Geranium* and *Pelargonium*, because there existed differences in character, easy to be distinguished. He had the kindness to define them for me as follows:—

The *Geranium* (Crane's bill), alternate leaves, regular flowers, with ten prolific stamens.

The *Pelargonium* (Stork's bill), having leaves opposite, irregular flowers, seven prolific stamens, and the upper division of the calyx a little larger than the others.

I was forced to agree to the propriety of this arrangement, but

knowledge, ever on the march, was not satisfied with so imperfect a classification, and I was soon called upon to adopt a *new name*, which had been given to a genus formed out of the two others; this was—

The *Erodium* (Heron's bill), having for characters alternate leaves, flowers regular, and five fertile stamens.

Thus were formed, from the original *Geranium*, two additional genera—*Pelargonium* and *Erodium*.

Years have passed away, during which my time has been too much occupied by other matters to permit me to take much thought about floral matters, but now being, through ill health, unable to give so much time to business, I am glad to devote some of my leisure hours to a pursuit which afforded me so much gratification in past days; but I find things have much altered. There has been a stupendous improvement in the culture, and an infinite number of superb hybrids has been produced; but I find that the names have been changed, and am at a loss to distinguish by which of them I should call my plants.

Thus, *Erodium* is seldom heard of now; the only instance in which I have met with it lately being in Messrs. Harrison & Co.'s "Catalogue of Herbaceous and Alpine Plants," *Erodium Reichardii*. As to *Geranium*, when I read of it in the *Cabinet*, the word is followed by *so called*, in a parenthesis; and reading in the *Times*, of 11th May, the report of the Botanic Society's Flower Show in the Regent's Park, on the 9th, I find it stated that "the *Geraniums* of Mr. Turner, of Slough, were of the best;" but I look for them in vain in the list of prizes—the two awarded to Mr. Turner are for *Pelargoniums*.

In order to remove my uncertainty, with respect to the names, I have thought I might take the liberty, as a subscriber to the *Cabinet* from the commencement, upwards of twenty-two years ago, of applying to you for information; and therefore request you, or some of your correspondents, will have the kindness to tell me what is a *Geranium*, and what is a *Pelargonium*. Also, if the name of the CLASS is changed, and if so for what reason—which, in that case, I hope is a good one; for otherwise I think that *Geranium* is much the prettier name, and should have been retained.

THE SEASONAL GROWTH OF PLANTS.

BY A CRITICAL OBSERVER.

THAT the growth of plants is affected chiefly by the temperature of the climate of which they are natives is well known. On the confines of the frigid zone, and over all the temperate, and part of the torrid zones, plants are regularly seasonal; that is, they grow,

blossom, and yield seeds in one season, and rest in the other. And even in the hottest parts of the torrid zone, although there is nothing like summer and winter, yet there are changes of weather which affect plants in a similar manner. There is the dry season, especially towards the end of it, in which a great majority of plants cease to grow, and even shed their leaves; and many wholly disappear, withdrawing themselves entirely from the light and heat of the sun, and remain in a torpid state till the dry heat is over. This is followed by the rainy season, which recovers all vegetation; the foliage and flowers of bulbs and tubers spring forth from their dormitories, the seeds of herbs are awakened into life, and the shrubs and trees all put on a new livery.

In latitudes where the regular seasons of summer and winter are constantly experienced, the development of plants in the one, and their torpidity in the other, are common occurrences, and every day before our eyes. And although it is perfectly obvious that the changes of temperature are the principal and ostensible causes of vigorous action and rest alternately, there are instances of particular plants which, though they obey the revivifying influence of the vernal season, stop long before that degree of heat which first excited them to action ceases in the autumn. Of this fact the common *ash tree* is an instance: although it is one of the latest in coming into leaf in the spring, it is one whose summer growth is quickly over, rarely extending its shoots after the month of July; and sometimes its growth ceases soon after Midsummer.

This circumstance plainly shows us that heat alone is not the agent which can cause vegetable development to be progressive, and that it is not the southern declination of the sun nor the diminution of his power which arrests the growth of some plants, but rather that there is some constitutional law which regulates the growth by impulses; certain portions of the organization being developable, and when this is complete a pause takes place for a longer or a shorter time.

Most of the plants in the temperate zones make annual pauses. Their visible growth and the annual divisions of their woody structure show this very evidently. Some few there are which make a double pause; a short one at Midsummer, and a long one during winter. The oak always, and the horse-chestnut frequently, present this Midsummer rest, succeeded by what is called the Midsummer shoot.

In the equatorial regions the pauses or cessations of growth are caused, as already observed, by the alternations of the dry and rainy seasons; and although in constantly humid or marshy situations there is no appreciable difference in the verdure, yet, on examining the ligneous structure of the trunks, we plainly see that it is formed by pulsations, as it were; instance the mahogany, satin-wood, and other tropical kinds of wood used in manufactures. But in respect of these just mentioned, we are not certain that the concentric rings of wood, on a transverse section of the trunk, are annual layers, because, for aught we know to the contrary, they may be deposited

at twice or even thrice in the course of twelve months in those exuberant climates. In this temperate country it has been repeatedly proved that there is a deposit of new wood in every year of the tree's life; but of tropical trees we have as yet had no positive proof. Travellers in those countries cannot have leisure to prove this matter; and we have heard of no resident who has attended to this particular.

A question occurs—Is there any such a thing in any climate as an ever-growing tree? Among herbs and suffruticose plants, there are perhaps many which, being placed in constantly uniform circumstances of heat and moisture, are ever growing, more especially those which emit roots from their lengthening stems, and which at the same time produce both viviparous and oviparous progeny; that is, both runners and seeds. All that are called creeping plants are ever extending themselves, if sufficient heat and moisture be present; but this process is not a constantly increasing growth of the original stock, but an increase of numbers or bulk of the offset progeny. Such instances are frequent among the grasses, whether purely herbaceous, like the Sheep's Fescue (*Festuca ovina*), or woody, like its gigantic congener, the Bamboo. This latter is a stolon plant, and in its native country appears in an ever-growing state; its aggregated stems are ever rising in successive gradations, from the green succulent shoot, peeping through the soil to-day, up in various heights to nearly fourscore feet.

But if there be any plant which may be truly called ever-growing, we will most likely find it among the Palms. The growth of these majestic trees really appears to gain altitude by an incessant progression, without manifest pause or periodical interruption; and this appears much more evident from examination of the internal structure of the stem, than from constant observation of the external development. Frond after frond rise from the centre of the bole, and are consecutively expanded; and though we may reasonably fancy that the growth may be more rapid during the monsoons, there is certainly no sign of anything like grades to indicate cessations of growth or interceptions of the structure of the wood, the whole being a uniform combination of longitudinal fibres imbedded in coarse cellular membrane, without divisions either horizontally or vertically.

That this may be the case with some of these plants is probable, not only from the uniformly exciting climate of which they are natives, but from the rigid character of their exterior, the bark being harsh, and the foliage, even in its young and most tender state, of the toughest texture; hence not easily affected by changes of weather. And as the fruit of several of them is, like the fronds, successively (not annually) produced, there seems to be less necessity for periodical pauses in their growth than in the case of trees otherwise constituted.

How different is it with the tuberous and bulbous stemmed plants of tropical and other countries. Soon as the monsoons or autumnal

rains set in, they come forth in great vigour, bloom in great beauty, but quickly retire from the increasing heat, leaving their seed to be ripened and shed in the dry air, while their vital principle reposes unseen in the bosom of the new bulb or tuber which has been formed or enlarged simultaneously with the seed, and in which it remains secure till the arid heat is over. This is exemplified in the *Hæmanthus* of Africa, the *Tuberose* of India, the *Potato* of South America, and the *Snowdrop* of Europe. Were these plants unprovided with those substantial tuberous or bulbous parts, they must inevitably perish during the great heats to which their native lands are subject.

But to return nearer home. We observe in the temperate climate of Europe, and where summer and winter follow each other uninterruptedly, the herbs of the field, and the deciduous shrubs of the copse and wood, are active and verdant in the first, and stationary and defoliated in the last. Some of them continue to grow and retain their foliage till destroyed by frost; others, as cultivated bulbs and tubers, the ash already mentioned, and many others, stop as soon as their paroxysm of growth is over. With respect to those which are arrested by frost (and chiefly exotics), their stopping is easily accounted for—namely, a coagulation of their juices, which stays the current, and consequently checks all distension of the membranes and vessels. But regarding those trees and shrubs which cease growing while the weather is genial, and, as often happens, both moist and warm, we can come to no other conclusion concerning them but to presume that, after a winter's rest, there is a certain division of the system prepared and destined to be developed, and, when this is completed, the season of rest recommences.

This is very evident in bulbs and tubers, whether cultivated in the flower or kitchen garden: a *Hyacinth* ceases growth before Midsummer, and a *Spanish onion* very soon after; nor can either of these be prompted again into action until they have had a period of rest. In these cases it is very clear that atmospheric heat, abstractedly considered, is not the sole agent in vegetable development, otherwise the growth, both as to vigour and duration, would always be equal to the intensity of the inciting cause; and, according to this rule, the development at Midsummer, when the sun's heat is usually greatest, should be more luxuriant than at any other time of the year. This, however, we know is not the fact; and therefore we can only rationally attribute the stagnation of growth at any period of the warmest season to some constitutional peculiarity of the plants respectively.

In regard to annual, biennial, and perennial herbs, their development is easily comprehended. They grow up, flower, ripen their seeds, and die entirely in the first and second years, if annuals or biennials, or die down to the ground, if perennials. The annual growth of a tree or shrub having a permanent head is very different. These have a certain number of shoots, leaves, flowers, and fruit to mature, and moreover a new layer of wood and a new liber to distend

and maintain. This distension is affected by the rarification of the sap stored in the cellular and vascular membranes inducted in the last or other bygone years, and this rarefaction and expansion is supplied by water and other elemental food absorbed by the roots from the earth, and by the stomata or pores of the bark and foliage from the air.

Now, if there be not a sufficient supply of food collected from these sources for the amplification of the shoots, leaves, flowers, fruit, and new layers of wood and bark, the full expansion of the parts cannot be complete, and of course the growth will cease early in the summer, or the expansion of the different members will be both slow and diminutive. But, on the other hand, if the plant be healthy, and can supply itself with a full quantum of food, the expansion of every part will be more ample, and the growth longer continued. But even under those favouring circumstances it does not appear that the growth will be continued longer than the period necessary for completing the previously prepared portion of the organization, unless art interferes to derange the process. For instance, if an annual plant be cut over early in the season, and before either flowers or fruit are produced, other shoots will be produced to complete the purpose of the plant; and if these be again cut off, this mutilated being, whose period of existence is predestined by nature to the space of only a few months, may be kept growing for twelve or more: this happens with many of the grasses. So if a shrub, a Rose, or a Rose acacia, be pruned back as soon as they have yielded their first flowers, they will shoot and flower again in the autumn. The like takes place on the development of trees, and fruit trees particularly; if their first shoots or flower-buds be destroyed, others will subsequently come forth to make up the loss, and the seasonal growth be greatly prolonged.

From all these observations, and from the instances adduced, we are led to infer that the great majority of plants are more or less seasonal, that they have periodical states of action and repose; and in many cases we have reason to suppose that the completion of the first depends on the perfection of the second.

It is evident that plants, like animals, require rest, as proved by the facts observable as relative to them. That they have rest from this change of seasons is manifest; and that they take rest when their paroxysm of growth is over is equally obvious. Many of them even appear to sleep; for as soon as the light of the sun is withdrawn, their winged leaves drop from their erect or horizontal position, and hang listlessly till the next dawn of day. Thus it would seem that plants require to be restored after the excitement of the summer. But we have further to inquire whether this rest be necessary, and whether plants be invigorated thereby. That it is necessary is obvious, because it is an incident in the course of nature; and that they are recruited in their vegetative powers may be believed, by comparing the vernal with the autumn growth; their winter rest is only a kind of torpidity, in which their vital action is not wholly re-

pressed. There is always some visible motion, however slow, particularly in the swelling of the buds, the emission of root-fibres, and the occasional oozing of sap from a wound made on the south side of a tree, even in the depth of winter. And as the interior of a stem is always warmer than the surrounding air, there may be some kind of elaborating or assimilating process going on, which may have a chemical effect in changing the crude sap imbibed in the summer into a richer and more excitable fluid, better fitted for expansive action in the spring.

Practical experience has assured us that a tree which has been debilitated by removal, drought, or from other casualty, and consequently destitute of the necessary share of this matured sap, shoots feebly, and produces few or no perfect fruit; and in the business of forcing fruit trees, we can very frequently see that if one has been exhausted either by very early or repeated forcing, or from bearing a great crop of fruit, it is less able to be forced early, or to bear a heavy crop in the following year. This consequence is often visible in the open air, where we rarely see two heavy crops following each other.

It is of the utmost importance to the fruit-grower to keep his trees in that thrifty condition that they shall never become debilitated by over-bearing or for want of due nourishment, and particularly that they be always charged with a full supply of elaborated sap, which is indicated by the short-jointed, full-eyed, and brown hardy colour of the bark of the bearing wood; and that to mature this still more, a thorough check and complete stagnation of the fluids must be given, to prepare the tree by a season of rest for future exertion. On this principle the practice of *wintering* trees is founded, many believing that a good tight frost for a week or two is really of great good service to fruit trees which are occasionally forced.

Checking luxuriance, either by a very low or a very high temperature, causes prolificacy. But this is a violence which should be seldom had recourse to; for though it may cause the exhibition of the fructiferous, it will debilitate the growing principle.

On the whole, it may be averred that in the cultivation of every seasonal plant, its climatal and constitutional propensities (if we may use the word) should be regarded.

CULTURE OF LISIANTHUS RUSSELLIANUS.

BY MR. THOMAS SHAW, GARDENER, HOPE LODGE, EDMONTON,
MIDDLESEX.

A FEW years ago well-managed specimens of this most beautiful flowering plant were exhibited at the principal London shows, and the lovely *tulip-shaped* large blossoms, borne in profusion, were the admiration of every beholder.

It was soon apparent that, to grow the plant well, it required a

little *peculiarity*, which if not strictly practised, a failure would be the result. Some celebrated plant exhibitors not managing it well, and producing only miserable specimens, discouraged many from making attempts afterwards. From that period to the present time I have grown and bloomed numerous specimens every year, most successfully. The plants were managed as follows; and all who pursue the directions hereafter detailed will not fail to realize equally satisfactory results.

The best time to sow the seed of this most splendid plant is in March, and as the seed is amongst the smallest of nature's productions, it requires additional care in sowing; therefore to sow it in the usual way, upon a *loose soil*, the first watering carries the seed along with it, and hence the failure.

Prepare the following compost: half loam, the other made up with leaf, peat, or bog mould, with a little sand; place plenty of drainings in the bottom of a forty-eight or thirty-two pot, fill it with the compost very tight, and on the top place half an inch of sand; damp the sand with water, to harden the surface; sow the seed, and sprinkle a very little dry sand on the top; place a propagating glass over the pot, or a piece of glass will do; place your pot into a heat of seventy or eighty degrees, with a pan under it, for the future watering—at no time water on the top; the pan ought never to be allowed to get dry. The seedlings will appear in three weeks or more; when about three weeks up, plant them singly in a sixty-sized pot in the above compost, with plenty of drainings in the bottom. Place them again in the back of your cucumber pit or frame; after this you cannot give them too much water, over head, and in the pans; by the autumn, if they have been kept in a good growing heat, they will be fine little bushy plants; top them at every joint. In September shift them into large sixties, merely to keep their roots in a more intermediate state for the winter; after this all top watering must cease, and a pan placed under each pot to receive the watering; and as the winter approaches not a drop of water must be allowed to fall on the plant. The drier the top mould next the leaves and stem get, the more certain of preserving your plant. The best place I have found is a one-light pit, heated with a lining of dung from fifty to sixty degrees; air given front and back, that no damp can fix on the bars and drop on the plants; the second best place is the coldest part of the stove, very near the glass; I have also kept them well in the warmest part of the greenhouse; in all cases, just water sufficient to keep the plants from flagging. If the winter is dry, water once a fortnight; if damp weather, once a month or so. Towards the end of February place them in a cucumber pit or frame, in a heat of from seventy to seventy-five degrees, and when they begin a fresh growth shift them into as large pots as convenient, remembering the larger the pot, the finer your specimen. My largest plant had 600 blossoms on it, and was grown in a number eight-sized pot; but many others had from 300 to 400. As

the spring advances, it is almost impossible to give them too much heat and moisture; they are very fond of liquid manure.

It is useless to grow a fine plant in any place approaching to *dry heat*, nor *less* than seventy to eighty degrees. I have grown them five inches in seven days.

In removing out of the pits, great care must be taken in not allowing the sun to shine on them for some days, as the change from a damp close heat to a dry house will be too much for them. By the above treatment they will come into flower about the middle of July, and keep blooming from two to three months, forming a most splendid ornament for drawing-room, conservatory, or greenhouse.

THE MANAGEMENT OF BLETIA TANKERVILLIÆ AND B. GRANDIFLORA.

BY MR. JAMES JONES, OF PEVERIL HOUSE GARDENS, ANGLESEA.

As ornamental stove plants the *Bletias* stand prominent, and the fact that one of the above species or other beautiful ones are to be found in almost every stove is an acknowledgment of their merits. Notwithstanding the many hundreds of showy hybrids and other plants which are annually introduced into this country, the *Bletias* have outlived many gay productions; and will continue to be admired when thousands of new introductions, the fugitive beauties of which flutter only for the day, have speedily passed away and scarcely left a trace of their existence behind. The *Bletia Tankervillia* has been cultivated in this country since 1776, and was flowered for the first time in England at Apperly Bridge, near Bradford, in Yorkshire, to which place it was imported from China, by Dr. Fothergill. It is cultivated in almost all stove collections, although it but seldom attains that magnitude and beauty which, under good management, it is so fully capable of displaying. With me this old plant is a favourite, a circumstance which will perhaps best account for the degree of success which has attended its cultivation. The plan by which it has been found to arrive at a very high degree of perfection and beauty is the following. About the middle of April the flowers begin to decay; the roots of the large plants are divided into three or four bulbs, these are then potted into pots suitable to contain the roots, with a small portion of earth; in this they remain until the roots have become sufficiently numerous to again require shifting into larger pots. This process is continued from time to time as the plants require it, the latter being generally made to bloom in sizes varying from nine to fourteen inches in diameter. The compost in which they succeed the best is a mixture of about two-thirds turfy peat earth, containing a

large quantity of strong heath roots, with one-third part of loam, sand, and decayed manure. In compost thus prepared, they attained, during the past season, very great luxuriance. One plant now in bloom has produced ten flower-stems, some being upwards of four feet in height, and each having numerous flowers.

The roots of the *Blattia*, when in a growing state, require to be kept very moist; they are, however, exceedingly impatient of over-watering, and are never found to thrive when the earth in the pot is kept so wet as to cause them to rot and decay; this is a very common error, to obviate which it requires the greatest care and attention in watering.

NOTES ON NEW AND SELECT PLANTS.

48. *BEGONIA MAGNIFICA*. Nat. Ord. *Begoniaceæ*. Discovered by M. Linden, of Brussels, in the cold and moist parts of Cundinamarca, at an elevation of nearly 8000 feet above the level of the sea. It forms a bushy plant; the leaves are moderately thick, the upper side is velvety and finely veined with silvery white, reflecting a metallic lustre. The flowers are of a brilliant scarlet, two inches in diameter, produced in a peduncle, six or eight in each. This species which will shortly be sent out by Mr. Linden will no doubt prove the finest of its class. (*Lind. Cat. Plant. Exot. 2.*)

49. *CALATHEA PARDINA*. Nat. Ord. *Cannææ*.—This is a splendid species, doubly beautiful by the magnificence of its leaves and the beauty of its flowers, qualities rarely found united in the same individual species. The leaves are large, with long footstalks, the edges lively green, along which are disposed two rows of large regular spots of a violet-black. The flowers are of a pretty citron-yellow, very large for the genus, forming a spike. It was discovered and introduced by M. Schlim, who found it in the humid and shadowy forests which border the Rio Magdalena, in the province of New Granada. (*Lind. Cat. Plant. Exot. 2.*)

50. *CALATHEA METALLICA*. Nat. Ord. *Cannææ*.—Another species not less distinguished than the preceding for the richness of its leaves, the surface of which is of a dark green, reflecting a golden, metallic hue; along each side of the midrib is a dark shade similar to that in *C. Warscewiczii*. The flowers are small, violet, forming a cylindrical spike, the top of which is crowned with sterile bracts. It was discovered in the pestilential forests of Choco, by M. J. Triana. (*Lind. Cat. Plant. Exot. 2.*)

51. *DIDYMOPANAX SPLENDIDUM*. Nat. Ord. *Araliaceæ*.—It inhabits the hot regions of New Granada, and consequently will flourish in a temperature lower than 50 degrees. It is one of the handsomest trees of its native country, where it acquires a height of from thirty to fifty feet. It is there known under the name of

Cajetero. The leaves, borne on long petioles of an ebony black, are four feet in diameter, the upper surface of which is of a clear green, and the under part of a silvery white. (*Lind. Cat. Plant. Exot. 3.*)

52. *NANDIROLA LANATA*. Nat. Ord. *Gesneriaceæ*.—This is remarkable by its reflexed leaves one upon another, forming a sort of arch, above which the flowers are elevated; they are of a light lilac, interiorly shaded with violet, very delicate in texture, and elegant in form. The leaves and petioles are covered with a woolly down, very thick, and pure white. The introduction of this charming Mexican plant is due to M. Ghiesbreght, who discovered it in the fissures of rocks at Pantepec. (*Lind. Cat. Plant. Exot. 3.*)

53. *ORTOSIPHON SPICATUS*. Nat. Ord. *Labiatae*.—A pretty greenhouse plant with large white flowers, forming a quadrangular spike, six to eight inches long. The leaves are acuminate, oval, and possess an extremely agreeable scent. The floral bracts are green shading into violet, and the stalks four-sided. It is a native of Ocana. (*Lind. Cat. Plant. Exot. 4.*)

54. *TYDÆA AMABILIS*. (*Achimenes*). Nat. Ord. *Gesneriaceæ*.—An admirable Gesneraceous plant, with handsome marbled leaves and charming flowers of delicate rose, deeper towards the limb; the throat is streaked with white and carmine-rose. It is a *decidedly beautiful* stove plant. It was introduced by M. Triana, who discovered it in the province of Popayan. (*Lind. Cat. Plant. Exot. 4.*)

55. *TYDÆA ELEGANS*. (*Achimenes*). Nat. Ord. *Gesneriaceæ*.—Another handsome species, discovered by the same botanist in New Granada. It differs from the preceding species in having flowers of a *brilliant scarlet*. (*Lind. Cat. Plant. Exot. 4.*)

56. *BOMAREA PUDIBUNDA*. An elegant climbing plant, which is perfectly hardy, with rosy carmine flowers, borne in terminal branching umbels; the perianth is bright green, tipped with black. Discovered by M. Triana, in the provinces of Marquita and Bogota. It only requires a covering of leaves to protect it during winter. (*Lind. Cat. Plant. Exot. 4.*)

57. *CALYPTHRARIA HÆMANTHA*. Nat. Ord. *Melastomaceæ*.—This is the most handsome representative of its family yet introduced into Europe. In its native country it is known by the name of *Sangre de Toro* (Bull's blood). It is a bushy stove shrub, and an abundant bloomer. The branches, petioles, peduncles, pedicles, and calices, as well as the under side of the leaves, covered with a yellow down; the latter are very thick, and remarkable for their pretty reticulated (net-like) nervation. The flowering racemes are nearly two feet in length, each one bearing from fifteen to twenty flowers upwards of two inches in diameter; the petals are fleshy, of a bright purple-crimson. It was first discovered in 1847, by M. Schlim, in the province of Ocana, New Granada, from whence he sent seeds and plants to M. Linden, of Brussels. It grows at an altitude of from 5000 to 7000 feet in sandy soil. It is really a splendid acquisition to the greenhouse. (*Lind. Cat. Plant. Exot. 4.*)

58. *CHETOGASTRA LINDENIANA*. Nat. Ord.
bushy stove shrub, with velvety leaves, ferruginous beneath, and large dark purple flowers. It was discovered on the summit of Monserrate, in Santa Fé de Bogota, at an altitude of 9800 feet. It was introduced by M. Schlim, who also found it in the province of Pamplona. (*Lind. Cat. Plant. Exot.* 5.)

MISCELLANEOUS.

MEETING OF THE HORTICULTURAL SOCIETY, APRIL 3RD, STREET.—The rooms were crowded with visitors, and the specimens of plants, flowers, fruits, and vegetables were immense, and of first-rate excellence.

Forced Pot Roses.—Mr. Francis, of Hertford, sent a collection of handsomely formed plants, each about two feet high, bushy, and nearly a yard in diameter, bearing from twenty to thirty roses, half of which were fully blown. The sorts were—*Tea Roses*: *Eliza Sauvage*, deep straw colour. *Comte de Paris*, blush. *Niphetos*, pale lemon. *Souvenir d'un Ami*, blush and salmon. *Vicomtesse De Cazes*, golden yellow. *Madame Bravy*, creamy white, with yellow centre. *Hybrid Perpetuals*: *Géant des Batailles*, vermilion-crimson. *Auguste Mie*, rosy blush. *Jacques Lafitte*, light carmine. *Miss J. C. Meymott*, bright flesh. These were much admired.

Mr. Paul, of Cheshunt, sent a quantity of fine cut flowers. The most striking were—*Bourbon*: *La Quintinie*, velvety lake, fine. *Tea*: *Gloire de Dijon*, pretty salmon and yellow, fine.

Pot Roses.—*Madame de St. Joseph*, rosy salmon, fine. *Niphetos*, *Auguste Mie*. *Hybrid Perpetuals*: *Baronne Prevost*, beautiful blush. *General Jacqueminot*, fine vermilion-crimson. *Paul Joseph*, rich shaded lake. *Charles Souchet*, rich dark crimson. *Lavine d'Ost*, pretty blush. *Duchess of Norfolk*, deep crimson, climbing rose. From Mr. M'Ewen.

Begonias.—A collection of cut specimens of twenty sorts of these handsome and interesting flowers was sent from the Royal Gardens at Windsor.

Mr. Ingram has raised several beautiful hybrids, viz.: *Ingramii*, flowers a deep rose tinged with purple; *Nitida rubra*, a rosy red. *Suaveolens rosea*, a rosy pink. *Nitida rosea*, a pretty rosy blush. These, with many others, were greatly admired.

Cinerarias.—A collection from Mr. Turner, of Slough:—*Esther*, bright crimson. *Kate Kearney*, pure white. *Mrs. Sidney Herbert*, white and crimson. *Loveliness*, white and bright rose. *Mary Labouchere*, white, with lilac tips. *Lord Stamford*, white, with a porcelain blue rim. *Amy Robsart*, rosy purple. *Lablache*, a superb deep blue. *Estelle*, crimson-purple, with a white circle round a dark disc.

Messrs. Rolisson, of Tooting, sent a *Rhododendron*, having foliage much like a *Corræa*, and the flowers are borne in terminal heads of six to eight blossoms in each; they are tube-shaped, similar to a *Corræa* blossom, but about as wide again. The flowers are drooping,

of a vermilion colour. It is a handsome species, and we believe is to be named *E. refulgens*.

The collection of stove orchids was extensive; many superb specimens of the best kinds were in fine bloom. A magnificent *Acacia Drummondii* was the attraction of the day. The plant was about six feet high, and its elegant yellow flowers were in vast profusion. A plant of it ought to be in every conservatory and greenhouse. Like most other *Acacias*, it requires its side shoots to be duly cut in, in order to have it of good pyramidal shape, and in this form the flowers show to best advantage. The time to cut back the shoots are as soon as the bloom is over; the fresh shoots should be allowed just to break, then loosen the outside of the ball of roots, cut in where requisite, and repot into a larger size. By attention in thinning off the extra new shoots, and retaining a due portion to produce the flowers next spring—for it is on the *previous year's* shoots the blossoms are borne—all the genus may be managed to have handsome plants of any *small size*, suitable to any greenhouse stage. The beauty and fragrance of the noble collection of *Acacias* at Kew will repay a long journey to see, and to enjoy the perfume.

Messrs. Henderson, of Pine Apple Place, sent a collection of excellent greenhouse plants. *Hovea pungens*, with rich blue pea-formed flowers. *Boronia pinnata*, with its pretty rosy lilac flowers. *B. triphylla*, with handsome foliage and deeper flowers. A pretty white-flowered seedling *Pimelea*. *Pultanea subumbellata*, with deep orange flowers. *Dilwynia pungens*, with yellow blossoms, very pretty; the plants are liable to become naked, but, by attention to stopping the leads, they are easily kept bushy.

Mr. Watson, florist, of Hammersmith, sent a *Tree Pink*; it was bushy, two feet high, and the outside of it, in every part, finely furnished with flowers. The flowers are very fragrant, white, with a broad purple centre. These *shrub-like* Pinks will, no doubt, be soon multiplied by hybrid productions, similar to what has been effected with the *Tree Carnations*, and will be valuable acquisitions.

FLORAL EXHIBITIONS OF THE HORTICULTURAL SOCIETY AND ROYAL BOTANIC SOCIETY, recently held at 21, Regent Street, Gore House Grounds, and Regent's Park.

HORTICULTURAL SOCIETY (Rooms, 21, Regent Street, May 8th).—This was an excellent exhibition, the largest and best ever held here. The *Asaleas* (Chinese) were numerous; the best were—*Bianca*, *Falconii*, *lateritia*, *magna*, *Perryana*, *Duke of Devonshire*, *alba-magna*, *Narcissiflora*, a semi-double white; *Bealii*, white, striped and spotted with rosy salmon; *Beauty of Europe*, a salmon colour, edged with white; *Iveryana*, white, striped with rosy violet, was the most beautiful; *Kistelli*, a double pink; *Beauty of Dropmore*, crimson, with dark spots on upper petals; *Milioni*, pink, spotted with red; and *amansa*, a most profuse bloomer, flowers of a bright rosy purple; it has been proved to be *quite hardy*, at Messrs. Standish and Noble's Nursery, and is a valuable acquisition.

Rare Plants.—The most superb was from Messrs. Backhouse, of York, viz., *Genetyllis tulipifera*; but it was remarked that *Hedaroma tulipifera* is probably more correct. It is a hardy greenhouse *shrubby* plant, its leaves and growth very much like *Pimelea decussata*. The flowers are produced at the extremities of the shoots, each blossom is about two inches long, and one across the mouth, very similar in form to a *Fritillaria* or *Canterbury Bell*; they are *drooping*, like bells, white, spotted and streaked

towards the edge of the petals with a rich crimson red. It is easy to cultivate, and ought to be in every greenhouse; in growth it is like a robust *Sparganium*. *Genetilla macrostegia*, a greenhouse shrubby plant; the flowers are bell-shaped, drooping, of a deep crimson red. *Rhododendron Dufoureauxii*, having eight flowers in one head; each blossom much like the common white Lily in size and form. *R. Edgeworthii*, having very large flowers, white, with an occasional tinge of blush, and highly fragrant. *R. formosum*, its flowers are large, of a waxy white appearance, resembling those of *Azalea alba-magna*. *Calceolaria violacea*, a neat shrubby greenhouse plant; the flowers are pale blue, tinged with yellow, and dark spotted, very pretty. *Deutzia gracilis*, as standards (similar to Roses), in profuse bloom; very chaste and pretty. *Prunus sinensis alba-plena*; this double-blossomed Peach is handsome, and an admirable plant for forcing. *Salvia gomeriflora*, the size of a large gooseberry bush, in magnificent bloom; its rich scarlet flowers, in a profusion of spikes, were highly ornamental. *Eliocarpus reticulata*, a pretty shrubby plant, with a profusion of spikes of its little bell-shaped, drooping, white flowers; very neat for the greenhouse. *Schizanthus violaceus*; the flowers are of a dark blue, very pretty. *Acacia grandis*, the plant bushy, six feet high, and its profusion of rich yellow blossoms and neat foliage were very elegant. *Berberis Wallichii*, somewhat like *B. Darwinii*, but both leaves and blossoms larger in size, handsome.

ROYAL BOTANIC SOCIETY (Regent's Park, May 9th).—The collections of plants were not so numerous as usual.

Roses in Pots.—Mr. Francis, of Hertford, had a collection of superb plants, in which were *Paul Perras*, having 80 flowers; *Devoniensis*, 20; *Baronne Prevost*, 64; *Pauline Plantier*, 50; *Souvenir de Malmaison*, 27; *Bougere*, 32; *Géant des Batailles*, 37; *Chenadole*, 26; and *Coups de Hébé*, 35. These were in admirable health and great beauty, and are fine kinds for forcing.

Rare Plants.—*Meyenia erecta*, a greenhouse shrubby plant; flowers much like an *Achimenes*, of a rich purple colour.

Pekargoniums (best 12): *Governor-General*, *Carlos*, *Lucy*, *Basilisk*, *Rosamond*, *Majestic*, *Mochanna*, *Esactum*, *Rival Queen*, *Clara*, and *Petruchio*. Six best *Fancies*: *Madame*, *Delicate*, *Gaiety*, *Formosissimum*, *Caliban*, and *Electra*. Best six shown by an amateur were, *Fairy Queen*, *Magnificent*, *Duchesse d'Aumale*, *Stataiskii*, *John Bull*, and *Madame Mielles*.

Pansies in Pots (best 12): *Brilliant*, *Uncle Tom*, *Monarch*, *Ophir*, *Lord John Russell*, *British Queen*, *Marchioness of Bath*, *Satisfaction*, *Sovereign*, *Purple Perfection*, and *Emperor*.

Cinerarias (best 6): *Optima*, *Loveliness*, *Bousie*, *Sir C. Napier*, *Lady Paxton*, and *Picturata*.

Large collections of *Stove* and *Greenhouse Plants* were contributed by Mr. May, gardener to H. Colyer, Esq.; Mr. Barter, gardener to H. Bassett, Esq.; Mr. Green, gardener to Sir E. Antrobus, Bart.; and Mr. Rhodes, gardener to J. Phillips, Esq., of Stamford Hill. In Mr. Colyer's group were immense plants of *Epacris grandiflora*, *Eriostemon neritifolium*, *Boronia pinnata* and *serrulata*, *Ixora crocata*, *Azalea Murrayana* and *variegata*, *Ixora javanica*, *Vincas*, *Leschenaultia formosa*, *Erica elegans*, one of the finest plants of the kind perhaps ever seen; *Aphelaxis macrantha purpurea*, *Pimelea spectabilis*, *Chorozema Henchmannii*, and *Polygala oppositifolia*. Mr. Barter also had an admirable collection, in which were fine plants of *Ixora javanica*, and *crocata*, *Eriostemon intermedium*, *Stephanotis floribunda*, *Chorozema Lawrenceanum*, *Polygala acuminata*, *Azalea Perryana*, still one of the best varieties in cultivation; *A. coronata*, *Erica Cavendishi*, a fine plant, but insufficiently in bloom; the blue *Leschenaultia*, *Boronia pinnata*, *Pimelea Hendersoni*, very highly coloured; the sweet-smelling *Franciscea confertiflora*, and a *Vinca*. Mr. Green sent an immense double red *Azalea*, *Polygala acuminata*, *Ixora coccinea*, *Eriostemon intermedium*, *Ixora crocata*, *Aphelaxis macrantha purpurea*, *Azalea Iveryana*, literally one mass of white blossoms, in which were fine stripes of purple; *Pimelea spectabilis*, *P. Hendersoni*, *Franciscea confertiflora*, *Leschenaultia formosa*, *Chorozema Lawrenceanum*, *Danegia umbellata*, some *Cape Heath*, and *Epacris miniata*. Mr. Rhodes produced *Dracopis gracile*, a useful plant for cutting from for bouquets; the rose-coloured *Vinca*, an *Erica*, *Epacris grandiflora*, some *Cape Heath*, *Boronia serrulata*,

Erinemon nerifolium, *Stephanotis floribunda*, *Tetratheon verticillata*, *Loachenaultia formosa*, *Polygala acuminata*, and *Chorozema Laurenceanum*. The other collections were numerous, but comprised similar kinds of plants to those of the large collections.

Horticultural Society (Gore House, May, 18th).—The collections of specimens shown were of first-rate excellence, and in some classes far exceeded any ever before seen, particularly the *Roses*, and greenhouse *Ascleas*. We can only insert the best and the rarest.

New or Rare.—*Andromeda formosa*, the flowers are ~~pink~~ white, larger than those of *A. pulcherrima* or *A. cassiniifolia*, very neat and pretty. *Verbena*: *Mrs. Woodruff*, in the way of *Robinson's Defiance*, but the flowers are double the size of those, and of a similar brilliant scarlet colour. *Ascleas*: *Empress Eugénie*, the flowers are of exquisite form, of a rosy-purple, beautifully spotted with deep velvet. *Gompholobium barbigerrum*, a charming greenhouse plant; the flowers are as large as a half-penny, of a rich deep yellow, and produced in abundance, very showy. *Swainsonia laetifolia*, a neat dwarfish plant, blooming very freely, and its numerous lilac-purple pea-like flowers render it a charming greenhouse ornament. *Rhododendron Edgeworthii*; the plant shown by Messrs. Standish and Noble was a *standard* four feet high, and had twenty flowers, each being, at least, *five inches* across the expanded front of the blossom, waxy-white, some having a slight streak of bluish; the centre of the flower is of greenish-yellow; they are delightfully fragrant. A variegated-leaved *Pelargonium*, *Countess of Warwick*, in the way of *Flower of the Day*; leaves green at the centre, then a deep crimson horseshoe mark, and the outer portion a white margin; the flowers are of good form, large truss, and a brilliant scarlet, very fine. *Genetyllis* (*Hederoma*) *salicifera*; plants of this very beautiful flower were shown by Messrs. Garraway, of Bristol, and attracted universal attention.

Roses in Pots.—Those from Messrs. Lane and Son were literally *pyramids of flowers*. The best among them were, *Coupe de Hébé*, which is of exquisite shape; *Chenodole*, *Lamarque*, *Paul Ricaut*, *Queen*, *Lady Stuart*, *Paul Perras*, and *Géant des Batailles*. The following *New Roses* are very fine:—*Alexander Bachmetoff*, rich rosy purple; *Madame Dumage*, very large; *Prince Leon*, vivid rosy crimson, superb; *Baron Kermon*, lilac-blush, superb form; *Madame Duchere*, pink and lilac, fine form; *Madame H. Jacquin*, a brilliant rose colour, large buds; *Louise Odier*, bright pink and lilac, full, and in large clusters, fine; *Paul's Prince Albert*, rich crimson, good form; *Paul's Helen*, light blush, full, very fine; *Leon Plee*, very large lilac and pink; *Madame Philip*, blush, with carmine edges, fine; *Jules Margottin*, bright cherry, free bloomer, superb; *Gloire de France*, beautiful rosy purple, full, but not deep; *Adam Paul*, very large and full, rose colour, very sweet.

Pelargoniums, large flowered (best 12).—*Carlos*, a large bold flower, with dark top petals and white centre, very fine; *Basilisk*, bright scarlet; *Governor-General*, rosy scarlet, very fine; *Sanspareil*, a spotted variety; *Lucy*, lilac-rose, dark top, with white centre; *Magnet*, red, and very showy; *Queen of May*, a fine plant, of bright orange colour; *Rival Queen*, rose, and very free; *Majestic*, dark; *Clara*, rose; *Magnificent*, a fine specimen; and *Exactum*, white.

Fancy Class (best 6).—*Madame Sontag*, a noble plant of one of the best kinds, being bright rose, with clear white centre; *Cassandra*, violet-crimson; *Criterion*, crimson; *Gaiety*, white and maroon; *Delicatum*, light; and *Electra*, bright rosy crimson.

BRIEF REMARKS, &c.

APHELEXIS.—To grow this tribe of plants vigorous they require a rich turfy sandy peat. If the peat be poor, one-third of rich sandy loam should be mixed with it. They should be repotted, having a free drainage, when the blooms are fading, about July; then be placed in the open air, sheltered from wind and mid-day sun. At the end of September they should be housed again, placing them in an airy, dry situation in the greenhouse. When they begin to grow in spring, give them occasionally manure.

water. If struggling shoots be cut in, they push lateral ones, so as to enable you to have the shrub compact.

ON PLANTS AFFECTED WITH MILDEW.—In a former number of the *Cabinet* I observed a correspondent stated that during several previous months a quantity of his Pelargoniums and other plants had suffered from mildew, although the house was not a cold or damp one. I was similarly circumstanced, and being advised to water them at the roots once a week with nitre dissolved in water, in the proportion of a quarter of an ounce to a quart of water, I did so through the remainder of last autumn, and now have not a vestige of the mildew.—*Lucy*.

QUERIES ON FERNS.—The pages of your valuable *Magazine* have so frequently instructed me upon subjects connected with every branch of floriculture, that I am anxious through its medium to procure information upon one which interests me much at present. A great admirer of the Order *Filices*, I am wishing to make an entire collection of British Ferns, and I should esteem it a great kindness if any of your intelligent correspondents would afford me a few hints. I am not aware of any work upon the subject. I should be glad to know what soil is likely to suit best; what degree of moisture, shade, etc. etc., or where any collection is to be seen. I propose planting them on rockwork;—which will be the best season, and when the best time to search for them? A list of the varieties, and where they are most likely to be found, would be most acceptable. I wish to make the collection myself, therefore, of course, I cannot expect to complete it for several seasons. I must plead the excuse of my being a very young botanist for thus troubling you, and hope the desire to assist a beginner in the study will induce some of your able contributors to give me the information I require.—*A Subscriber*. [Procure Francis's Book on Ferns; it will supply the information required.—*Editor*.]

ON GRAFTING PELARGONIUMS.—On a former occasion I stated that at the end of last July I had grafted half a dozen very distinct coloured Pelargoniums upon a strong plant of the old vigorous-growing variety, Commander-in-Chief, doing it by first heading back to about four inches long the six leading branches, and immediately inserting a graft of another kind into each, in the whip-grafting method, having the graft a well-ripened shoot of that year's growth. After claying and mossing over the same, I placed it in a close frame, shaded, and sprinkled the foliage over daily to keep it fresh. In three weeks all the grafts were united, and at the end of September I repotted the plant, and now (May 20) the six kinds are in beautiful bloom in my conservatory, having been gently forced to get them thus early into bloom. The pretty contrast of form and colours of so many varieties in one plant render it so interesting an object as to deserve the attention of the readers of the *Cabinet*.—*Clericus*.

FLORAL OPERATIONS FOR JUNE.

FLOWER GARDEN.—The recent weather has been so cold that it has been hazardous to attempt putting out bedding plants, but we hope danger from frost need not now be apprehended, and as early as possible the planting should be completed; in many cases shading for a few days will be essential to success.

We have frequently called the attention of our young readers to the desirability of paying strict attention to the judicious arrangements of flowering plants, as regards height and harmony of colouring. It is true that, of late years, this subject has become a matter of study amongst gardeners, and great changes for the better have taken place in this respect; still we are far from supposing that we have arrived at perfection. Always bear in mind—if beauty, order, and effect are desired—that attention to this, next to a well-laid out flower garden, is essential to their full development. In producing well-arranged contrasts, the different shades of colour must be as distinct from each other as possible; for instance, white should never be placed in contact with yellow, or deep blue with crimson; but white forms a good contrast with blue or red, blue to orange, yellow to purple or violet, dark crimson to light blue, and scarlet should be placed near those which have a profuse green foliage, as red and green form the best contrast. Orange and violet do well. Greenish-yellow and rose contrast well.

Attention will now be required to water freely *established* plants, being careful it does not pass off; and in the *evening* sprinkle over head *newly planted* bedding plants, it tends to promote an early re-establishment. *Pinks* and *Carnations* will require due care in securing, and by the middle of the month pipings of *Pinks* may be taken off, and towards the end, layers of some early *Carnations* be made, and thin away extra flower-buds. *Dahlias*: *thin out the shoots*, so as only to retain about four or five. Stop the leading stem, at about nine inches high, to give support to the side ones. Cuttings will soon strike root. If the weather be dry, water daily, a good supply at once; a portion of mulchy manure, spread over the roots, is very beneficial. Seeds of *Sweet Williams*, *Canterbury Bells*, *Scabious*, etc., should now be sown for next year's blooming. *Auricula* and *Polygonus* must be kept in a *shady* but airy place. Prepare the compost for repotting in next month, and sow seed as soon as ripe; also *Pansy* seed.

NEW FLOWERS.—Let attention be given to hybridizing, with a view to obtain improved varieties. *Roses*: maggots often infest the buds; carefully examine, and destroy. Green-fly, too, stop at first by fumigation, or sprinkle the leaves and buds under and over with a solution of size and hot water; use it in a milk-warm state; it will coat over the insects and soon destroy them; a day or two after sprinkle the bushes over with pure water. A solution of glue will do quite as well as the size. *Chrysanthemums*: young plants should be prepared. *Violets* for next year's blooming, attend to beds of, etc. Put off cuttings of *Pansies*.

GREENHOUSE, ETC.—The greenhouse plants may now be placed out of doors; let them be duly watered, for if allowed to flag, the result is that the leaves are damaged. Moss placed between the pots keeps the soil cool.

The house will now have to be kept gay and sweet by *Balsams*, *Globe Amaranthus*, *Cockscombs*, *Brachycoma*, etc. Repot as required, to keep the plants in a growing state. *Achimenes* will now be coming into bloom; they repay for every attention. Cuttings of nearly all greenhouse plants should now be put off; May and June are the best months for that purpose. *Cinerarias* are highly ornamental, and well worth encouraging. Any done blooming and seed collected, if required, should be turned out of the pots entire into a bed of rich soil, where there is shade from eleven to four o'clock. There they will flourish, and supply an increase for next year's bloom. Cuttings of *Roses* may be put in, and will soon strike. *Camellias* that have been forwarded by forcing the shoots and buds, should now be placed in a cooler situation, to give vigour to them. When the foliage of *Ranunculus* or early *Tulips* is quite dead, the roots may be taken up. *Pelargoniums*, as they go out of bloom, must be prepared for another season.

Ericas.—The early blooming kinds should be drafted out, and others may follow them as fast as they go out of bloom. Examine the plants very carefully, and see that they are in a proper state as to moisture; and if you are an exhibitor, never put a plant of this or any other kind into a van, without previously giving it a good soaking of water. The young plants which are not blooming had best be placed in a pit where they can be exposed or not, as may appear necessary. Stop such as require it boldly back, and train them so as to form a proper foundation for a good specimen. As the principal specimens go out of bloom they may be removed to a shady situation to make their growth, being previously cut in, if necessary. Supports for an awning must be placed over them, so that, in case of heavy storms or continued rain, they can be protected a little. Clear, weak manure-water may be used occasionally for the free-growing kinds. With regard to ventilation, there is no fear of your over-doing it after this time. Repot any requiring it, but do not over-pot; the one-shift system is injurious to nearly all the tribe, the only exceptions are those of rapid growth and robust habit. Rough peat and silver sand, with bits of stone, etc., and a liberal drainage, are requisite. *Epacris*, etc., should also be duly attended to in repotting, etc.

Ascleas in the forcing pit must be kept shaded during bright sunshine, and a moist growing atmosphere must be maintained around them. Water freely with weak guano-water, and sprinkle the vacant parts of the house or pit daily, but not upon the bloom. As the plants go out of flower, place them in heat, to perfect their wood for next year's blooming. *Camellias*: promote the well ripening of the wood, before fully exposing them to the open air. The supply of next season's bloom depends on *this attention now*.



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Nº 1. M^{rs} STORY.

Nº 2. QUEEN VICTORIA

The Floricultural Cabinet.

JULY, 1855.

ILLUSTRATIONS.

FUCHSIAS.

NO. 1, MRS. STORY; NO. 2, QUEEN VICTORIA.

THE Fuchsia derives its name from Leonard Fuchs, a famous German botanist of the sixteenth century.

The Fuchsia has been placed, in the language of flowers, as the *emblem of taste*, for with its richly coloured blossoms there is a peculiar harmony and beauty in the unassuming appearance of the flowers, which hang with so much gracefulness from amongst the elegant-shaped foliage of the plant. The length of the stamens also add greatly to the beauty of these pendent blossoms, having the appearance of so many gems suspended from a small roll, in many instances, of the richest violet-coloured ribbon, over which the beautiful calyx hangs like a half-expanded parachute, allowing only a glimpse of the rich purple, violet, or other handsome corollas to be seen between the openings, the whole being headed by an emerald-coloured receptacle for the seed. The more modern taste as to what constitutes a perfect blossom has decided that the sepals should *reflex* so that the *tips* of the segments curve inwards, thus fully exposing the corolla to view. The *calyx buds*, before they are expanded, have the appearance of ripe barberries, and in some kinds the veins of the leaves are tinged with a fine crimson colour, which contributes to the beauty of the plant.

The first Fuchsia which was introduced into England was the *F. coccinea*, a native of Chili. It was unknown to the Old World until the year 1788, when a plant was presented by Captain Firth to the Royal Gardens at Kew, from whence it was soon afterwards distributed as a *stove* plant. Mr. Lee, nurseryman, of Hammersmith, was the first who had plants for sale, which, from their great beauty, brought a high price, from ten to twenty pounds per plant being given. Since that period a vast number of species and improved varieties have been introduced into our gardens, and none more singularly neat and pretty than those with a *white corolla*, that have recently

been raised; two of the very best we have figured in our present number, and others having *double white* corollas, also striped ones, we intend to give in a short time.

Fifteen years ago the charming *Fuchsia venus-victrix* was raised, and its flowers having a clear white tube and sepals, with a violet-blue corolla, were universally admired. Attention was soon directed to obtain similarly coloured flowers of a larger size; the first was our *Queen Victoria*, of large size, white tube and sepals, with scarlet corolla (figured in vol. x of this Magazine), and subsequently many other white ones have been raised, having corollas of various shades from crimson to deep purple. The two varieties figured in our present number, having rich coloured tubes and sepals, with *pure white* corollas, are just the reverse in arrangement of colour to the previous section we have above noticed, rendering them a most valuable and highly interesting addition to this lovely blooming family, and supply us with sources for hybridizing and raising still greater beauties of this section. Many years ago we had a *Fuchsia thymifolia*, the flowers were small, changeable in colour from dark mulberry to pale pink, and in occasional instances it had *pure white blossoms*. We do not know what kinds of Fuchsias were impregnated by the raiser to obtain the *new varieties* having white corollas (which are now figured), as well as others we have referred to, but have been told that first a variety with flowers *wholly white* was raised, and that between it and a variety named *Banks's Glory*, whose blossoms are crimson, with rich purple corolla, the several white corollae, with crimson or scarlet tube and sepals, were produced. They are, however, most valuable acquisitions, and every admirer of Fuchsias especially interested in raising improved hybrids ought to possess the whole of them. They are free growers, and bloom profusely.

REMARKS ON A CONTINUOUS SUCCESSION OF FLOWERS IN THE FLOWER GARDEN.

BY A CONSTANT READER AND ADMIRER, F. E., COUNTY OF DURHAM.

I **VERY** much admire the admission in your valuable publication of remarks on and suggestions of gardening improvements. I have devoted much time and have had great success in the immediate subject of this letter, under every possible disadvantage of climate and soil. The observations I am about to make apply principally to the practice in the counties of Durham and Northumberland, having seen but little (continuously) in more favoured localities; but I suspect, in the generality of gardens, the same deficiency would be found in most counties—I mean the neglect of herbaceous and bulbous-rooted plants, and sacrificing the appearance of the garden by keeping the beds bare for the whole season, previous to putting out the half-hardy plants (*Geraniums*, etc., usually so called, but properly they are

Pelargoniums), which, in the June number of the CABINET, you recommend being delayed till now, and which *here* can never be sooner commenced with safety. The plan I pursue is the following.

I cultivate, in a small reserved piece of ground, a number of hardy early-flowering plants, plain and variegated leaved *Arabis*, *Honesty*, *Wallflowers*, etc. (*Anemones* would be admirable, but they do not succeed here); these are put in the place of the *Geraniums* when taken up, and the *bulbs* planted at the same time. I send you a description of some of my principal beds. Two large baskets made of wood driven into the ground, one was planted round the edge with tufts of *Oxalis*, and the other with pots of different coloured *Crocuses*, and were in bloom together; the centres had a dozen *Hyacinths*, which bloomed splendidly, and the space between the edge and centre had *Tulips*, still in bloom (the *Crocuses* will be removed in their pots to an outhouse till they are wanted again); two beds *Wallflowers*, another bordered with variegated *Arabis*, and the middle *Tulips*; sixth, purple *Honesty*, seventh, *Primroses*, edged with white *Narcissus*; these do not require removing, but left to die down. There is sufficient room for shrubby *Calceolarias* to be inserted; and it is worthy of remark that two, which were left to die, are coming up vigorously, having lived through the last severe winter without protection, for the first time the last ten years in this place. The only things in this list that cost money were the *Hyacinths*; the rest were all produced from former plants.

The *Geraniums*, etc., will now take their places. The white and purple *Honesty* (if to be removed after flowering) require sowing every year for the next; it makes a beautiful bed. I saw large masses of it in the Zoological Gardens at Clifton, on the islands, where, of course, it is left to sow itself. Where plants can be left undisturbed in shrubberies, etc., there are always plenty of self-sown plants.

In the mixed beds I cultivate all sorts of *perennial* plants; they have a great advantage over annuals, besides their continuing to grow in the same place for years, in the *earliness of the appearance of their foliage* above ground, which presents a great variety of shades, and *furnishes* the space before their flowers appear, of which so many precede the annuals that are sown in the open ground. Several nurserymen (two of great eminence in the North and near London) have regretted with me the neglect of herbaceous plants, and said they would be very glad to cultivate them extensively, if they met with any encouragement, but that there is no demand for any but bedding-out plants. This has determined me to throw these slight suggestions on paper, and if they are considered worthy a place in the FLORICULTURAL CABINET I shall be pleased, and hope that they may tend to encourage a more general growth of the classes of plants I have referred to. I am seldom without some flowers in bloom, except when they are covered with snow. I think if my plan were generally followed, the aspect of our gardens would be much improved. The surprise my early flowers excite proves

they are not very commonly seen thus arranged; and if the SUCCESSION of the floral tribes were duly considered, this, their most *wonderful attribute*, must be appreciated.

In my previous remarks I perceive I have omitted to notice two important beds, as they do not come under the head of very early flowers, which are principally the objects of my remarks. They are the beds reserved for *Dahlias*, which would, of course, remain bare much longer than those for *Geraniums*, etc., as they are much later coming into growth and flower. I have round one, at the outer edge, alternately *Pæonies* of different sorts, and the perennial *Poppies*. The early foliage of some of the *Pæonies* is red or copper coloured, the old *Pæony* grass-green, the *Poppy* sea-green; they form a beautiful hedge, and will very soon be in flower, after which they will be cut down, and the *Dahlias* by that time have filled the bed. The second *Dahlia* bed is edged with a small blue *Salvia* (or *Stachys*), which grows very thick, and remains a long time in flower, is seen at a considerable distance, and only requires cutting in after flowering.

I have found a simple contrivance of my own invention of great use in marking flowers, as *Poppies*, *Tulips*, *Roses*, etc., for seed, removal, or anything requiring a mark—namely, Berlin wool; of the respective colours if selfs, or mixed wool if variegated. My gardener likes it much, saving time, and tied round the stalk is not liable to be lost.

GENTIANELLA.

BY FLORA.

It seems little understood that this beautiful plant can easily be propagated by *seed*; the fact is, that the seed does not vegetate the *first year*, persons therefore, finding no vegetation the *first year*, conclude the seed to be bad, and give up in despair; whereas if they waited nature's own time, they would be abundantly repaid. By pursuing that method of increase I can easily grow *Gentianella* in any desired quantity, and have bordered a garden with it.

[We feel obliged by this communication, as numerous complaints have been sent us relative to the great susceptibility of injury which this most charming and ornamental flowering plant is liable to when taken up and divided for replanting. But by sowing seed where the plants are to remain, and display their *unrivalled blue* flowers, the injury is avoided, and a permanent edging will readily be maintained. By scattering a few seeds amongst the plants each season a regular succession may be had, to supply any portion that may perish from age or other casualty.—EDITOR.]

TREATMENT OF INDIAN AZALEAS.

BY THE FOREMAN OF A LONDON NURSERY.

IN your April number there is an excellent article on these plants. My mode of treatment is different in some particulars, but not having seen any plants flourish equal to those under my care, I am desirous to add my mite of practical information, which I hope will be of additional service to those readers who, like myself, are ardent admirers of this handsome showy genus.

All tender Azaleas require one general mode of treatment, as follows. Pot them as soon as they have done flowering, which will be about the end of May, except those intended to be left for seed, which must remain until they have ripened their seed. Use a mixture of equal parts of sandy loam and peat, with a small portion of leaf-mould, in preference to all peat; and be careful in potting to give a good drainage of broken potsherds; for although they delight in moisture, stagnant water usually proves injurious to them. About the middle of June, place them in a somewhat sheltered and shady situation, out of doors. Allow them to stand in this situation till September, then remove them into a pit or greenhouse, in any airy situation, until they are wanted for flowering. It is a great assistance to them, when about expanding their flowers, to remove them into an increased temperature; this should be from sixty to sixty-five degrees Fahrenheit, and the plants may be introduced about the middle or end of September, which will come into flower towards the end of October, and will continue blooming till December; others brought in the middle of October will continue flowering till January; those brought in the end of November will continue flowering till February, when those in the pit or greenhouse will commence flowering, and continue till May. When they are in flower, a good supply of water is requisite, to enable the plants to support them; any deficiency in this respect will cause the flowers speedily to fall.

When they have done flowering place them in an increased temperature of a medium forcing house or pit, thus assisting them by every means to make *young wood*, a good supply of which must be secured before they are removed from the increased heat. For this purpose, syringe them about once or twice a week, and after they have grown considerably, remove them to the greenhouse, previous to their being turned out of doors, and treat them like other greenhouse plants, merely giving them a good supply of air and water.

When the young shoots are about four inches long, they are best calculated for cuttings. Take them off after the plants are removed to the greenhouse; separate each cutting *close* to the old wood from whence they start; trim off no leaves but those which grow on that part intended to be inserted in the pot. They must be planted in either sand or light soil, the former is the best; plunge the pots in a

little heat, and place a hand-glass over them, and in the course of a fortnight or three weeks they will strike root.

When they have struck root, transplant with balls into single pots, filled with the compost recommended for the old plants, and again plunge them in a little heat until they have begun to grow, after which they may be removed to the greenhouse, and be treated like other greenhouse plants. Many of the greenhouse species and varieties will bear a good degree of cold, and will thrive very well if planted under the wall of a stove, greenhouse, or other warm situation; but in winter they must be sheltered by mats from the effects of frost.

CULTIVATION AND EFFECT OF THE FUCHSIA AS A STANDARD ON A LAWN.

BY MR. JOHN LAWSON, GARDENER, EDANHAM HOUSE, NORTH DEVON.

As ornamental and half-hardy shrubs, the several species of *Fuchsia*, and their very numerous varieties, are at once the freest bloomers, the most elegant in habit, and the least difficult of cultivation, of any of the vast number of shrubs with which the collections of this country abound. In any situation they are therefore, when in a healthy state, exceedingly handsome plants; but that in which they are pre-eminently beautiful is on a well-kept lawn, either as dwarf bushes or trained with a single stem to the height of four or five feet, with their pendent flowers and branches reaching half-way down the stem. In such situations, when happily associated with surrounding objects, their beautiful and graceful appearance surpasses any thing the imagination can conceive.

Having offered these preliminary remarks, I will now endeavour to describe the mode of culture which I have found attended with the least expense, and greatest success in preserving them uninjured through the winter. Plants that have attained the height required (about one to two years' growth from cuttings) are selected and planted in a compost of one part well-decomposed manure, one part of sand, and two of yellow loam. Previous to this compost being introduced to where the *Fuchsias* are to be planted, the whole of the common soil is removed fifteen inches deep, and about four feet wide. In planting, the roots are carefully spread out. The plant is then neatly tied to a straight stake, proportioned to the height of the stem. The latter is previously pruned to two-thirds of its own height, and as the top increases, this pruning is repeated from time to time on the lower branches, till the stem has attained the desired height. Some of the kinds bloom so profusely as to weigh down the shoots too much; to prevent this I have a wire frame-work, in shape like an umbrella, and secure the branches upon it, thus secured they have a pretty and elegant appearance. About the end of October the plants

are lifted, the roots shortened, and placed in pots of light earth; they are then removed to a warm part of the greenhouse, where they are kept for ten days or a fortnight, till they have recovered from the check received from lifting, after which they may, during the day, be fully exposed to the air in a cold frame or greenhouse. Towards Christmas, if kept very cool, they will have shed the most of their leaves, and may then be placed close together. I have found that plants of four feet in height, if allowed plenty of air during the middle of the day, keep very well in an area of nine inches square each. A one-light frame, or, what is nearly as good, a thatched portable covering, five and a half feet long by three and a half in width, would thus contain thirty-four plants, a greater number than in most cases would be required. I therefore mention this merely to show the practicability of supplying, at very little expense or trouble, one of the greatest ornaments the flower-garden can possess. The plants may again be planted in the open ground any time between the beginning and end of April. In a sheltered garden, with a dry subsoil, I am quite aware that protecting the Fuchsia during winters of ordinary severity is unnecessary; but thinking there may be a few whose gardens are situated like my own, in a low and damp situation in the north of England, therefore whoever are so circumstanced will find this care indispensable.

ON THE ADVANTAGES OF APPLYING LIQUID MANURE FOR THE GROWTH OF PLANTS.

BY AN OLD LONDON PRACTITIONER.

Few things, in the management of plants, are more overlooked than that of applying liquid manure. When the roots of plants are confined within a garden pot the soil soon becomes exhausted; and if it be desirable to grow the plant rapidly, it must be turned out of the pot, and the exhausted soil shaken from the roots, and replaced with fresh earth, or recourse must be had to liquid manures. Floriculturists cannot be aware of the advantages of applying manure in a liquid state, or it would be more frequently used. I have found that all free-flowering plants, such as Petunias, Geraniums, some of the Calceolarias, Balsams, and Cockscombs, are improved, and indeed I have not found any flowering plant whatever that has not been benefited by a greater or less quantity of this element. Many New Holland plants are increased in vigour by this treatment; even the *Epacris*, *Diosma polygala*, and many others, besides not a few of the Heaths, are benefited, when it is occasionally applied, as, for instance, once every seven or ten days. In watering plants with liquid manure, it will be observed that the soil, after having been watered a few times, does not dry so soon as when watered with clear water, and this independent of the extra

nutritious qualities left in the soil by the application of manure-water; it is, then, a great point gained, by whatever means effected, when plants, whether in pots or in the natural soil, can be cultivated without the necessity of frequent waterings. As there is no more labour required in using manure-water than in applying the same quantity of water without any mixture of manure, considering, too, that its advantages must be obvious to all who give it a fair trial, it does seem somewhat unaccountable to see persons exerting a great amount of labour to accomplish very small results. It must be regarded as so much labour misapplied, when, had half the same labour and attention been bestowed, using at the same time liquid manure, far more satisfactory results would have been obtained.

ORCHIDS.

BY J. BATEMAN, ESQ.

IN respect to the leading points in cultivation—supposing the plants established in a suitable house, which is an indispensable preliminary, the following rules will be found to contain all that is most essential for their successful management.

1st. The plants can scarcely have too much light or too little sun.

Light prevents mildew, strengthens the fibre, and checks the disposition to throw up a succession of weakly shoots, which are quite incompatible with the production of flowers. The sun, on the contrary, scorches and turns the leaves yellow, especially when it first begins to shine powerfully upon plants that have just left their winter quarters. In order to secure as much light as possible, many species should be suspended in the air from rafters or chains, some being placed on blocks of wood (cork wood is the best), or fragments of cocoa-nut husks, and others in baskets of wire or wicker-work filled with moss and broken peat, or in pots with pierced sides. The latter answer perfectly for plants (*e. g.*, the *Saccolabiums*) which are of slow growth, and thrust their roots into the air. Baskets answer best for *Stanhopeas* and the like. To prevent injury from the rays of the sun, shading is of course necessary, but this should be so arranged as to be easily removed, as it ought not to be continued for more than ten or twelve hours on the very longest summer's day. Exotic climbing plants introduced sparingly are advantageous, and have a good effect.

2nd. Take care of the roots.

On the health of the roots everything depends. The winter is with them the most critical season, for if suffered to grow too dry they shrivel up and perish; if too wet they rot. Much, of course, depends upon the mode in which the plants are potted, and which should be such as to admit of their readily parting with all superfluous

moisture; and to secure this nothing is better than a plentiful admixture of broken potsherds. High-potting is now so generally practised in good collections, that it is needless to insist upon its importance. Rapidly growing plants, such as the different species of *Phaius*, *Gongora*, *Peristeria*, *Stanhopea*, etc., require to be broken up and entirely repotted every second or third year; on the other hand, there are some air-plants, etc., that may remain undisturbed for five or ten years together.

3rd. Beware of noxious insects.

Orchidaceæ are more particularly exposed to the attacks of the following insects:—woodlice, crickets, and cockroaches, the thrip, a minute woolly white scale, and a diminutive species of snail; the two last being infinitely the most pernicious. Woodlice are easily kept in check by placing the plants on saucers, or within troughs filled with water, especially if the valuable aid of a few toads be called in. The “Oniscamytic Epiphyte-stand,” invented by Mr. Lyons, is an ingenious and, no doubt, effectual way of accomplishing the same end. It is made by merely fixing a forked branch, or block of wood, to the raised centre of a massive saucer or feeder, which, being kept constantly full of water, forms a sort of fosse—impassable to vermin—round the plant it is intended to guard. Crickets and cockroaches are very fond of flower-scapes, and to be dreaded accordingly. Red wafers scattered over and among the pots are to them very tempting baits, and if swallowed, the red lead they contain acts as a poison; but these pests are best destroyed by the mixture recommended for the white scale. The thrip does not do much mischief, except where plants are either neglected or grown in too hot and dry a temperature. It usually first appears among the *Cataseta*, and is to be removed by careful washing. Small snails abound in some collections, while in others they are unknown; it is difficult to conjecture whence they come, and all but impossible to eradicate them entirely. They batten upon the tenderest roots, such as plants put forth when they are just beginning to grow, and if not kept in check would speedily produce irretrievable mischief. Lettuce-leaves, slices of potato, turnip, etc., are very enticing; and while they divert the attention of the enemy from the roots, they also afford an opportunity of capturing him. The collections which are watered exclusively with rain-water are the least infested. But the worst plague of all is the small white scale, which, in its first insidious approaches, appears only as a white speck upon the leaves, then covers them with a soft whitish down, and finally kills them. For this the following remedy will be found efficacious: viz., dissolve half a pound of camphor in a pint of spirits of wine; the result will be an impalpable powder, to which add one pound of Scotch snuff, one ditto pepper, one ditto sulphur, and keep in a bottle (carefully stopped). This mixture should be dusted over the infected parts, and repeated whenever or wherever the enemy shows itself. If persisted in for some time, the mixture rarely fails to effect a perfect cure; and it has the further good property of act-

ing as a most deadly poison to cockroaches, etc., which have quite disappeared in the collection at Knypersley since this mixture came into frequent use. Besides the above annoyances, the red spider and the brown scale are frequently injurious, but never except in cases of gross neglect.

4th. Give the plants a season of rest.

Without a season of rest most plants will not flower at all, and others do so very imperfectly. It is easily accomplished in a variety of ways, either by moving the plants from the warmer to the cooler end of the house, or by diminishing the quantity of water, or by placing them in a cooler house. Even exposure in a hot, dry atmosphere, although it scorches their leaves, not unfrequently throws them into vigorous flower. Plants from the East Indies, and from other climates, where the extremes of drought and wet are not felt so severely as in Brazil or Hindostan, require a season of rest proportionably short, and of a less decided character.

5th. Attend to the condition of the air.

In winter 60° to 65° is a wholesome temperature for most of the species; in the summer it may rise to 70° or 75°, or even higher, if derived from the heat of the sun. Where there are two houses, the warmer one should not be lower than 70° even in winter; but, fortunately, there are comparatively few kinds that insist upon so hot a berth. The air should always be soft, and nearly saturated with moisture. The latter should, however, be prevented from dripping upon the plants as it condenses; and this is easily effected by fixing a small copper pipe, or piece of channelled wood, under each rafter and sash-bar, to catch and carry off the water.

6th. Do not over-water.

This a beginner is very apt to do, and a grievous fault it is. When plants do not shrivel or flag, it is a sign that they are content with the humidity that the atmosphere of the house supplies. When watering is necessary, it should not be done indiscriminately, but according to the wants of particular plants. It is also of great importance to use rain-water only, which may be collected for the purpose in a tank, as shown in the plan of Mr. Rucker's house, and which should not be applied of a temperature below 60°. Syringing in moderation may be had recourse to in hot weather. Some of the *Sobralias*, together with *Bromheadia palustris*, grow more vigorously if their pots are set in saucers of water during the summer months.

To the foregoing rules the following advice may be added:—Do not aim at having too large a collection, but rather strive to grow a few good kinds in the best style.

GROWING BALSAMS TO GREAT PERFECTION.

BY AN ATTENTIVE PRACTITIONER.

BALSAMS being general favourites, and grown in almost every cottage

window, I beg to submit to their admirers a system for very much improving their flowering. I sow the seed in March, pot singly into small sixty-pots, and when the plants begin to show bloom-buds I select the best, rejecting all the inferior, and with a pair of grape scissors clip off all the blooming flowers and far advanced buds, being careful to cut them off close to the flowers or buds, thereby leaving as much of the flower-stalk to the plant as possible. I then shift them into larger pots, and place them in their former situation. By these means the plants throw up their lower branches to great perfection. If the flowers are allowed to remain on the plants as they appear, they injure their growth, and still remain separate; and, being hid by the leaves, are prevented from being seen to advantage. If my method be adopted, the plants will require shifting again in a fortnight, only then clipping off the flowers, but leaving the buds, and in a short time they will be entirely covered with one complete mass of flowers, for where the flowers were clipped off they will throw out three for one; the plants also grow double the strength of those treated in the usual way. To prolong the flowering season, I take off both seed-vessels and flowers as soon as they begin to fade. Thus new flowers are produced in succession for a considerable time.

SUCCESSFUL TREATMENT OF *SALVIA SPLENDENS*.

BY MR. THOMAS WILLIAMS, OF SION LODGE, LIVERPOOL.

THE brilliant *scarlet* flowers of this *Salvia* are exceedingly ornamental, but it is rarely grown as its capabilities admit, and having succeeded with it very far beyond what I have seen elsewhere, I forward the details of treatment.

I put in the cuttings in May, three or four round the edge of a six-inch pot; as soon as they are rooted, I pot them into pots of about the same size as those they were taken from. When these are filled with roots, they are then shifted into the pots they are intended to flower in. All that the plants afterwards require is plenty of water, with some liquid manure occasionally. When they are in their flowering pots, they should be grown in the greenhouse, and their tops should be *pinched off frequently*, but not later than August, or the bloom will be deficient. This plant is not particular as to soil; loam, leaf-mould, and sand suit it well, with a liberal drainage, to admit surplus water freely to pass off. Treated in this manner I produce bushy plants, from six to eight feet high, which bloom profusely from the end of October to Christmas. In places where it is required to keep the conservatory or sitting-room gay, during the time I have specified, this showy Sage will be found exceedingly useful.

This *Salvia* is readily formed into a tree-like form, similar to a standard rose, by training a principal trunk and rubbing off the

side-shoots till it is high enough; then by stopping the lead, a fine head will soon be produced, and be easily shaped into a desirable form. The *Salvia speciosa* (or *pulchella* of some) is of much less size; by stopping the shoots it forms a neat dwarf bushy plant, and blooms very freely. The flowers are a brilliant scarlet colour, very handsome through winter and spring, and ought to be in every greenhouse. The *Salvia gesneriflora* is also a most valuable winter flowering plant. Its large spikes of brilliant scarlet flowers are exceedingly ornamental during the first three months of the year. I treat them as follows with admirable success. I strike cuttings in autumn, pot them into sixties, in which they are kept in a dry cool pit from frost. As soon as danger from frost is past I turn them out of pots into the open ground, where they have scope for growth, and before frost in autumn I take them up with a ball of soil and pot them into suitable sized pots, place them in the greenhouse, and duly treated they bloom magnificently at the above period of winter. These autumn-struck plants make large specimens; but strike cuttings in April, and plant them in the open border, then take up and pot at the end of autumn, such will be dwarf ones.

FLORA OF SUMATRA.

IN order to account for my not having before thanked you for the papers, I must tell you that I have been for several weeks exploring for coal in the interior of Sumatra. As my time was not my own, I was unable to collect much, and could dry no specimens, except a few of the beautiful little *Lichens* and *Hepaticæ*, growing parasitically on leaves. How many species I send you I do not know; they seem to me almost innumerable, and many may probably be new. I send you also a lot of seeds, among which are those of three *Palms*, as they appeared perfectly ripe; I hope they may grow. I send also the fruit of the gum-benjamin tree, and one of the Shiklar trees, for this last article is found on several species.

Among the seeds are two very handsome *Cucurbitaceæ*, with brilliant scarlet fruit, and a very ornamental, small-flowered, yellow *Ipomœa*; possibly they may none of them be new, and perhaps even may be worthless, but it was better to send all than none, when I was making up a parcel; and I had one thing to send which I really think is very curious, as an instance of the instinct which teaches man to seek certain stimulants wherever he is, independently of what is taught him by others.

In going up the river Chenaku, I saw everywhere *Coffee* planted about the houses, and in every case the fruit dropping and decaying on the ground; upon inquiring, I found these people drank an infusion of the leaves, and entirely neglected the berries. I was very anxious to taste this, and see it prepared, and luckily had an opportunity of doing so. A number of the young twigs of the plant were

gathered, with their leaves, and after being cut to about a foot in length, were placed closely together between two strips of bamboo, tied at the ends so as to form a dense disk of green leaves, about eighteen or twenty inches in diameter. This was then held over a clear blazing fire (the ends of the bamboo serving for a handle) until the leaves were of a rich brownish-green colour, and perfectly crisp and brittle; the latter part of this process requires some care, as, when nearly dry, the leaves are almost as inflammable as gunpowder, and if once they catch the flame the whole is consumed in a moment. When dry, the leaves are pounded, by crushing in the hand to the state of the specimen sent you, which I got prepared for your museum, before my eyes. The powder of the leaves is infused in boiling water, exactly like tea, though in much larger quantities; it produces a dark brown liquid, looking like coffee, smelling like green tea, and certainly tasting very much like a mixture of the two; it is very pleasant, however, and refreshing, after a hard day in the sun, and I can understand these people being passionately fond of it, as they certainly are. The curious part of it is that, while *Theine*, *Caffeine*, and *Theobromine* have been found (nearly identical as they are in composition and properties) in use in three distinct parts of the world, and valued for the same exhilarating qualities, here is a people little raised above savages using also in an independent manner one of these very plants, being evidently uninstructed, as otherwise they would certainly have used the berry, as their teachers did, finding out for themselves its qualities and uses.

I saw in my trip up these rivers a great number of interesting plants, including many *Palms*; how very numerous must this splendid family be here. With very few exceptions, those seen were all different from my old acquaintances at Labuan; a good many of them, two of whose seeds I send, were very slender and elegant rattans. I saw many eatable fruits new to me, of which species of *Nephelium* were very abundant, as also *Meliaceous* plants, allied to the *Lansat*, one of the most delicious of fruits. The *Durian* is here in almost incredible quantities, forming in the season certainly by far the largest proportion of the food of the natives; the quantity they eat of it is perfectly astounding. Among other things worth notice, I observed a Fern very frequently prolific from the axils of the pinnæ of its fronds; I send two or three specimens of such as I could preserve, but I had only a note-book of small dimensions to dry them in.—*Hooker's Journal of Botany.*

AN IMPROVED MODE OF PROPAGATING CARNATIONS, WALLFLOWERS, ETC.

BY A FLORIST.

IN propagating Carnations by the usual method of layers, I have found

the shoots very liable to be broken off, therefore adopted a different plan, which I have found to succeed beyond my expectation. It is, however, a simplification of the common method. At the usual time, I take those pots of plants I intend to operate upon, and fit them into pots of a *larger size*, so that the upper edge of the former is about an inch *below* that of the latter. I then clear away the surface mould from under the leaves of the plant, and having tied up the grass with a piece of bass matting to a stake, I take a penknife, and introducing my finger at the back of each grass *seriatim*, I make a slit upwards about an inch in length, and as near the root as possible, directing the knife by the finger at the back of the shoot. The grass being tied up, causes the talus (the part slit) to protrude a little. The double pot is then filled with compost, care being taken to shake it well down betwixt the sides of the outer and inner pot, in order to fix them so that the incisions are covered about half an inch deep. I practise this plan for border Carnations, double Wallflowers, etc., for each of which it succeeds equally well. It is, besides, a much more expeditious method, and I doubt not but I should be able to dress half a dozen plants in this way in the same time that would be required to dress one in the way which is generally pursued.

NOTES ON NEW AND SELECT PLANTS.

59. *CUPHEA EMINENS*. Nat. Ord. *Lythraceæ*.—One of the most remarkable of this pretty genus. It is a robust, half-shrubby plant, with straight stems, growing about eighteen inches high, furnished towards the base with numerous lanceolate leaves, resembling the Peach, and terminating in a compact spike of flowers, which are the calices, and of a brilliant red striped with orange-yellow. Notwithstanding the absence of petals in this species, it is a very ornamental greenhouse plant, and no doubt will also flourish in the open bed, in summer. Its native country is Mexico, from whence it was sent by M. Ghiesbreght. (*Lind. Cat. Plant. Exot.* 5.)

60. *GONOCALYX PULCHER*. Nat. Ord. *Vaccineæ*.—A charming frutescent plant, with bushy branches, covered with dense foliage. The flowers are tubular, of a bright red, numerous scattered among the foliage. The leaves are small, almost round, and somewhat resemble those of the *Rhamnus Alaternus*. The young branches as well as the young leaves are tinged with a pretty rosy purple. It was discovered, along with *Calyptraria hemantha*, in the provinces of Pamplona and Ocana, by M. Schlim, where it is a bush, growing at the altitude of 7000 feet. (*Lind. Cat. Plant. Exot.* 5.)

61. *LAMOUREUXIA GRANDIFLORA*.—This is a magnificent variety of *L. multifida*, with swelling tubular corollas two and a half inches in length, of a bright velvety scarlet. The leaves are small, pinnatifid, with linear segments. This is one of the numerous introductions

of M. Ghiesbreght, from the State of Michoacan. It only requires the temperature of a cool greenhouse. (*Lind. Cat. Plant. Exot.* 6.)

62. *LAMOUROUXIA RHINANTIFOLIA*.—This differs from the preceding by its membranous leaves, resembling those of *Rhinanthus crista-galli*, by its larger flowers, and long footstalks of a pretty purple. It was discovered in the same locality as the last-named species. (*Lind. Cat. Plant. Exot.* 6.)

63. *LOASA SCHLIMII*. Nat. Ord. *Loasaceæ*.—This remarkable species inhabits the cold regions of Sierra Nevada de Santa Martha, from whence plants were sent to M. Linden, of Brussels, by M. Schlim. When planted in the open air it acquires a large and vigorous growth. The flowers are of considerable size, yellow, with an orange-red nectary. The tall and elegant habit of this species makes it a desirable acquisition for training against trellis-work in the open air. (*Lind. Cat. Plant. Exot.* 6.)

64. *MONOCHÆTUM ENSIFERUM*.—A small bushy shrub, of an elegant habit. The leaves are thick, lanceolate, and glabrous beneath. The petioles and young branches are red; the flowers large, of a bright rose. Introduced by M. Ghiesbreght, from Mexico. (*Lind. Cat. Plant. Exot.* 6.)

65. *SCUTELLARIA TRIANAÆ*. Nat. Ord. *Labiataæ*.—A charming species with violet-crimson flowers, the lower lip of which is very large. The leaves smooth, oval. M. Triana sent this species to Europe, from the province of Bogota. (*Lind. Cat. Plant. Exot.* 6.)

66. *SCUTELLARIA SCARLATINA*. Nat. Ord. *Labiataæ*.—Another handsome species, with flowers of a brilliant scarlet, and pubescent leaves. Introduced by M. Triana, from the province of Popayan. (*Lind. Cat. Plant. Exot.* 6.)

67. *SIPHOCAMPYLUS PULCHELLUS*. Nat. Ord. *Lobeliaceæ*.—A very desirable species, of great delicacy of texture and colour. The leaves are numerous, oblong, ovate, irregularly dentate. The flowers are axillary, with the footstalks much shorter than the leaves; corolla tubular and narrow, of a violet-red, the lower lip rosy blush; the stamens and style are very projecting. Introduced by M. Schlim, from the province of Ocana. (*Lind. Cat. Plant. Exot.* 7.)

68. *TROPÆOLUM CHRYSANTHUM*. Nat. Ord. *Tropæolaceæ*.—Related to *T. crenatiflorum*, but totally distinct from all others. The leaves are of a bright green, with a purplish tinge beneath. The flowers are bright yellow, the spur green towards the summit; the petals are dentate. It is a climbing plant, from the cold parts of the province of Bogota. (*Lind. Cat. Plant. Exot.* 7.)

69. *BEGONIA NATALENSIS*. Nat. Ord. *Begoniaceæ*.—Captain Garden introduced this species to Kew Gardens, from Natal, South Africa. Although not of brilliant colour, it is an abundant bloomer, and from its being in profuse flower during the months of November and December, is a desirable plant to adorn the stove or warm greenhouse. The flowers are nearly white, with a tinge of blush,

one inch in diameter; anthers deep yellow. Leaves dull green, slightly marked with whitish spots. The root is a globose tuber. (*Bot. Mag.* 4841.)

70. *ALBUCA* (?) GARDENI. Nat. Ord. *Asphodelaceæ*.—Another of Captain Garden's introductions, from Natal. Sir W. Hooker has only provisionally placed this with the *Albuca*s. It is a plant of little beauty, the flowers being small, and produced in a spike of a greenish white. (*Bot. Mag.* 4842.)

71. *CHAMEDOREA ELEGANS* (MAS). Nat. Ord. *Palmaceæ*.—In general habit it resembles *C. gracilis*. It blooms in the winter and spring months. Being of the Palm tribe, which, although a very interesting family, are not generally cultivated, we need add nothing farther respecting it. (*Bot. Mag.* 4845.)

72. *BERBERIS BEALII*; var. *planifolia*. Nat. Ord. *Berberidaceæ*. Mr. Fortune sent this beautiful shrub to Messrs. Standish and Noble, from China, where he discovered it growing in a district considerably to the north of Shanghai; it is therefore perfectly hardy, indeed it has stood out during the late severe winter unharmed. The flowers are pale yellow, produced in a branching terminal raceme; blooms in March and April. The leaves vary much in size, some being a foot in length, and six inches broad, composed of several pairs of leaflets. (*Bot. Mag.* 4846.)

73. *TECOMA SPECTABILIS*. Nat. Ord. *Bignoniaceæ*.—M. Schlim discovered this remarkably handsome species on the Andes of New Granada, growing at an altitude of from nine to ten thousand feet. It is a small but vigorous *shrubby plant*. The leaves are very large, being two feet or more across. The flowers are produced in *terminal cymes*, and form noble *corymbose heads*. Each blossom is three inches long, and of a handsome yellow colour. It is one of the finest plants that has been introduced for many years, and merits a place in every conservatory and greenhouse. The elegance of its noble foliage and its numerous beautiful flowers alike contribute to render it ornamental. Probably this fine plant will flourish out-doors in warm situations, growing in so *high* a situation where discovered. (*Lind. Cat. Plant. Exot.* 10.)

74. *GARCINIA MANGOSTEEN*. Nat. Ord. *Guttiferaæ*.—This charming tree is a native of the Molucca Islands, but its cultivation as a *fruit-bearing tree* has extended to the Malay Archipelago, where, it is stated, it grows to the height of twenty feet, and becomes a noble branching tree. The leaves are six to eight inches long, thick, leathery, glossy, and in appearance like an oblong elliptical-shaped leaf of a Magnolia. The flowers are produced singly at the end of the shoots, in shape like a peach blossom, thick petals, and about two inches across, of a dullish red colour. The fruit is large, globe-shaped, three inches in diameter, of a rich purple colour tinged with brown and orange, and exuding yellow drops of juice.

It is well known that the late Duke of Northumberland encouraged the cultivation of tropical fruits, built stoves especially for them

and was eminently successful, witness the ripening of the Chocolate, Nutmeg, Cloves, Vanilla, etc.; and now the *Mangosteen* has borne flowers and ripened its beautiful fruit. Sir William Hooker, having received a fruit, states that the eatable part is the pulp of its cells, and these separate easily from each other like the cells of an orange. The flavour was delicious, and compared by some who partook of it to that of a first-rate peach and of a good grape. It is perfectly wholesome, and may be eaten in any desired quantity. In the stoves in this country the plant has not yet attained a greater height than ten to twelve feet. The fruit when young is of a reddish-green colour; when ripe, of a reddish-brown and orange; and when old, of a chestnut-brown and purple.

Fruit of it has been recently presented to Her Majesty; also exhibited at the Horticultural Society's Meeting, in the grounds of Gore House, on the 16th of May, and some are sent to the Great Exhibition at Paris. The *Mangosteen* has never before borne either blossoms or fruit in Europe. (*Bot. Mag.* 4847.)

75. *BEGONIA UROPHYLLA*. Nat. Ord. *Begoniaceæ*.—This species was introduced to the Royal Gardens at Kew, from Belgium. The leaves are heart-shaped, about ten inches across. The plant is stemless, and the floral stems spring from the crown of the roots. The flowers are produced in large panicles, having two sorts of flowers; *male* large, *female* small; there being two of each. Male blossoms are white, slightly tinged. It grows freely, and blooms profusely in the spring months. (*Bot. Mag.* 4855.)

76. *CANNA WARSZEWICZII*. Nat. Ord. *Cannaceæ*.—This superb *Canna* was introduced into Germany, by M. Warszewicz, from Costa Rica. The root is perennial. The stem, which rises from three to four feet high, is of a dark blood-red, and primrose. Leaves a foot long and six inches across, deep green, with the midrib and veins of a rich red. The corolla is of a bright scarlet, with a bluish tinge on the outside, and the blossoms *large*, produced in five terminal open spikes, each having from eight to a dozen flowers. It highly merits a place in every stove or warm greenhouse. In the German gardens this *Canna* is grown during summer in the open borders, where it flourishes and blooms very freely. It succeeds well, too, in a dwelling-room window. (*Bot. Mag.* 4854.)

77. *EMBOTHRIUM COCCINEUM*. Nat. Ord. *Proteaceæ*.—It is a handsome evergreen shrub from South America, supposed to prove quite hardy in our own country; at all events, it will flourish in the greenhouse. It forms a branching shrub, a few feet high; the branches are brown; the leaves about two and a half inches long, and nearly one across. It blooms very freely; the flowers are borne in terminal large racemes, each having from twenty to thirty blossoms, which are tube-shaped, and before opening are about two inches long, the end then divides into four curled segments. The flowers are of a bright scarlet, and the entire heads are like so many of a superb Honeysuckle. It is a charming plant, highly meriting a

place in every greenhouse and garden. Mr. Lobb sent plants of it to Messrs. Veitch, of Exeter and Chelsea Nurseries. (*Figured in Bot. Mag.* 4856.)

78. *TRICHOPILIA COCCINEA*. Nat. Ord. *Orchideæ*.—M. Warszewicz discovered this very handsome stove orchid in Central America. It has recently bloomed in Mr. Rucker's collection at Wandsworth. The flower-stalks rise but a few inches high, but each generally bears three flowers; they are from four to five inches across; petals and sepals lance-shaped, creamy-white outside, of a bright red-purple inside, edged with white. *Labellum* large, like a *Gloxinia* flower in form, the outside a creamy-white, inside a rich carmine-crimson tinged with purple. It is exceedingly handsome and ornamental. (*Bot. Mag.* 4857.)

79. *SABBATIA CAMPESTRIS*. Nat. Ord. *Gentianaceæ*.—From North America. It is one of the present year's *New Hardy Annuals*, but by cutting down early, it becomes perennial. The flowers are produced in terminal, branching, corymbose heads. Each blossom is in appearance like our English Corn Cockle, an inch and a half across, of a lively rose colour, with a yellow eye. It grows two feet high; very pretty.

80. *GLOXINIA DON PEDRO*.—A charming variety of the *G. Fyffiana* section (upright flowers), raised in the establishment of M. Van Houtte. The blossoms are large, two and a half inches across the mouth, of good substance, and the margin very even. The outside of the flower is white, the top limb is also white tinged with pink, around the mouth it is a rich carmine-crimson, and the inside of the tube white, beautifully dotted with carmine.

81. *G. DUC D'OPORTO*.—Another very handsome hybrid raised by M. Van Houtte, of the same erect section. The blossom is large, three inches across the top; the margin is not so even as the one above described. The flower is white outside, the mouth of a reddish-purple, the limb (flat portion of the top) is blue, with a white edging. It is very handsome.

82. *TROPÆOLUMS*.—The following hybrids have recently been raised in the continental gardens, they belong to the section of *T. Lobbianum*, *Moritzianum*, etc.

83. *TRIOMPHE DU PRADO*.—Each flower is about one and a half inch across, of a primrose-yellow, with five spots of a bright vermilion colour, one on each lobe of the face of the blossom.

84. *MASSILIENSE*.—Each flower one and a half inch across, of a deep orange-yellow, with five deep red spots, and a green centre throat; the blossom of neat form.

85. *CHIAIXIANUM*.—Each flower one and a quarter inch across, of a deep blood-purple, with a yellow centre throat; blossom very neat form.

86. *NAUDINII*.—Each flower two inches across, of a deep orange colour, some of which have five carmine spots, whilst others are striped with similar colours.

87. *LOBBIANUM TRICOLOR*.—Each flower an inch across, of a brilliant red colour, with five blue spots and a yellow throat; very neat form.

These handsome varieties are a valuable acquisition to this section of *Tropæolums*, and very ornamental for the greenhouse, during the winter and spring months; similar to the *Lobbianum* and *Triomphe de Gand*. They are easy of cultivation, and bloom very profusely. M. Van Houtte possesses these varieties, and has figured them in the *Flor. des Serres*. They merit a place in every greenhouse, forcing-house, or dwelling-room window.

88. *STREPTOCARPUS*.—New species from Natal; the flowers are borne in a spike, large, and of a beautiful light blue. Its numerous flowers render it a very ornamental plant. The spikes rise a foot high.

89. *ARCTOTIS GRANDIFLORA*.—Very similar in habit to the *Gazania*. It grows a foot high, and blooms very freely. The blossoms are about four inches across, of a fine orange colour, and in appearance like a single-flowered Dahlia. It does well either in the greenhouse or open bed in summer.

90. *TRADESCANTIA MARTENSCHANA*.—A native of Mexico, a spreading prostrate-growing plant; the flowers are borne in large terminal branching panicles, white, each blossom about half an inch across, having a powerful fragrance similar to violets. It is in the stove at the Royal Gardens at Kew. (*Bot. Mag.* 4849.)

91. *STREPTOCARPUS POLYANTHUS* (*Many flowered*). Nat. Ord. *Cyrtandraceæ*.—Sent from Natal by Captain Garden, to the Royal Gardens at Kew. Leaves nearly a foot long, lay close to the ground. The flowers are produced in panicles, which rise about a foot high, each having from ten to fifteen flowers. Each blossom is an inch and a half across, of a delicate pale blue, veined with a darker blue. It is very pretty. (*Bot. Mag.* 4850.)

92. *THYRSACANTHUS SCHOMBURGKIANUS*. Nat. Ord. *Acanthaceæ*. Syn. *T. rutilans*.—A native of South America; a stove plant, and a fine one for winter flowering. It produces great quantities of brilliant crimson, tube-shaped flowers, each blossom nearly two inches long. The plant grows from two to three feet long, branching, and twiggly. Flowers borne in axillary and terminal racemes, one to two feet long, and so numerous, that the drooping racemes produce a highly ornamental and beautiful appearance. It ought to be grown in every stove and warm greenhouse. (*Bot. Mag.* 4851.)

PETUNIAS.—The following six hybrids have been raised on the Continent, and are figured in M. Verschaffelt's *Illustré Horticole*.

93. *AURORA*.—Flower large, a mulberry colour, with a broad edging (margin) of green.

94. *ANNA PAULOWNA*.—Flower large, the tube blue, tinged with violet, the rest of the blossom a bright green.

95. *BELLE DE JOUR*.—Flower of good substance and good outline, a rich crimson, with a very distinct green edging; very handsome.

96. DR. WÜRTH.—Tube purple, the spreading limb (front) blue, edged with green.

97. ERMESINDE.—Flower medium size, good substance and form; deep rose, with a narrow and very distinct edging of green.

98. FIORETTA.—Flower medium size, good substance and form; tube purple, face rich rosy crimson, with a very distinct edging of sulphur-green; a beautiful variety.

The whole are very distinct and handsome, and well entitled to a place in every greenhouse, pit frame, or flower garden, a bed of each, or the six kinds grown in a circular bed in rings, would be very pretty. Plants may be procured, at a reasonable price, of M. Verschaffelt, through the order of any nurseryman in England.

ACHIMENES.—The following beautiful hybrids are also in M. Verschaffelt's establishment.

99. EDWARD OTTO.—A seedling from *Triverania coccinea* impregnated with *Achimenes fimbriata* (*gloxiniæflora* of some). The flowers are an inch and a half across the front, of a bright rosy red, the inside of the tube white and yellow, beautifully spotted; very neat.

100. A. DR. HOFF.—Flowers two inches across, white, with a rosy pink band round the yellow throat, surrounded with dark veins; tube pale orange; blossom fine form.

101. A. EDMOND BOISSIER.—A seedling between *A. Bæckmanni* and *Jaureguia*; flowers of good form and substance, white, with a yellow throat, surrounded with blue netted veins; very pretty.

MISCELLANEOUS.

HORTICULTURAL FETE, HELD AT THE CRYSTAL PALACE, SYDENHAM, June 2nd, 1855.—This was the first exhibition of *Flowers, Fruits, and Plants* held in this unrivalled structure. The number of collections placed for competition was immense, manifold more than we ever saw at any of the great exhibitions at Chiswick and the Botanic Gardens, Regent's Park, and though arranged in three or more rows deep, the extent of lines, it is stated, was upwards of one mile in length. They were almost universally well arranged to produce a striking effect, in being viewed to the best advantage, and at the same time an ample space was allowed for the vast number of visitors (said to be upwards of thirty thousand) carefully to inspect the entire, without crowding at any one place. The *sloping banks* of specimens comprised nearly 90 yards *length* of *Orchids*; *Stove and Greenhouse* plants about 250 yards; *Pelargoniums*, 60 yards; *Cape Heaths*, 70 yards; *Fuchsias*, 15 yards; *Greenhouse Azaleas*, 34 yards; *Calceolarias*, 25 yards; *Ferns and Lycopods*, 14 yards; *plants remarkable for handsome foliage*, 30 yards; besides a *considerable extent* of cut specimens and other miscellaneous productions. Our readers will thus be able to form some idea of the extent of the MAGNIFICENT COLLECTION EXHIBITED. *Vast and superb* as it was, we are aware many excellent plant and fruit growers hesitated to send first-rate productions, under the impression that in so vast an assemblage as would be brought together, encouraged by the *very liberal* prizes, in the whole amounting to £1000, they would be distanced, and had better, for the *first exhibition*, keep back and ascertain the probabilities of success in future. We feel confident that at the next Fête of this nature there will be *double* the quantity of specimens that were shown on this occasion. The entire arrangement was most admirably effective, and gave but another proof of the gardening abilities of the

principal director thereof, SIR JOSEPH PAXTON, M.P., and if in any minor matters there was room for an improvement, we are confident that Sir Joseph will have perceived such, and his genius will prevent a repetition of anything objectionable. The persuasion that the *exhibition and arrangements of the garden productions* would please every visitor was not entertained even by the Director of it, but we have much pleasure in testifying that though we heard the opinion of a great number of persons most likely to judge thereof, only one fault-finder's testimony was forthcoming. The day was exceedingly fine, and the gardens and terraces were the resort of the extraordinary assemblage of persons, enchanted with the *beautiful and extensive landscape* there so clearly seen, almost to an unlimited distance. The FOUNTAINS that are completed, vast in number, played on the occasion, and were the admiration of all beholders, and called forth their reiterated applause. We conversed with many who had come from the remotest parts of our own country, as well as from continental countries, having paid their one guinea, besides other incidental expenses, and their uniform testimony was that they were highly gratified, and most amply compensated for their journeys. If the ticket had only procured admission on this occasion it would have been worth far more than its price to every lover of horticulture, in enabling him to witness such a *magnificent display*, but when, in addition, it entitles its possessor to an entrance each day the public are admitted into the building, we cannot but be astonished that a greater number of persons residing at a reasonable distance from the Palace, and to whom the cost would be trifling, have not availed themselves of the opportunity to become yearly subscribers. A very important improvement on previous systems of exhibiting plants was here for the first time in this country adopted, viz., to offer prizes for PLANTS GROUPED FOR EFFECT, IN OR OUT OF FLOWER. Four prizes were competed for, viz., £30, £15, £10, and £7, with collections of thirty *stove and greenhouse plants*; these collections were arranged on stages similar to those adopted at Chiswick and Regent's Park; they consist of seven shelves, three on each side the top centre one, thus supplying a front *south and north*, and covered with *pale green* glazed calico, which gives a greater relief than a *dark green*. All the collections shown were shaded over with white canvas. We have only space to give the particulars of the *best specimens and collections*; to detail all would occupy the whole of our present month's number.

NEW OR RARE PLANTS.—Mr. Veitch exhibited *Rhododendron Brookeanum*, obtained from Borneo, and named in compliment to Sir James Brooke. It is a vigorous plant, with bright glossy-green *Oleander-like* leaves, and the flowers of *thick substance*, each about an inch and a quarter across, of a rich saffron-yellow colour; a charming acquisition. *Rhododendron californicum*, forms a neat bush, the fine flowers being of a pretty rosy pink colour. *Weigelia amabilis*, the flowers are much larger than those of *W. rosea*, and of a deeper rosy crimson colour. *Embothrium coccineum*, a handsome shrub, which trained to a wall proves quite hardy, having stood out four winters uninjured. The flowers are borne in terminal large corymbose racemes, in form somewhat like a honeysuckle, of a crimson-scarlet colour. It is a profuse bloomer, and very ornamental, worth a place in every garden, or cool greenhouse. Messrs. Rollison showed a most lovely shrubby stove plant, *Meyenia erecta*. It is a stiff-growing plant, with small foliage and a *profusion* of flowers. The blossoms are in form between a *Thunbergia* and *Achimenes*, each about two and a half inches across the front, of a rich deep violet colour, with an orange throat to the tubular portion. It belongs to the group of *Thunbergias*, and merits a place in every stove or warm greenhouse. Messrs. Standish and Noble had *Spirea grandiflora*, a charming hardy shrub, with a profusion of large white flowers. Mr. Ayres, gardener to Lord Southampton, had *Hydrolea azurea*. It is what is usually called a soft-wooded greenhouse plant, of neat habit, small leaves, and blooms freely. The flowers are nearly an inch across, of a handsome sky-blue colour, with golden anthers. One of the prettiest plants for the greenhouse, and ought to be in every one. *Thirty stove and greenhouse plants, grouped for effect, in or out of flower*. First prize £30, to Messrs. Rollison, for the following: on the top shelf an *Araucaria excelsa glauca*, ten feet high, and a *Ropaloe corcovadensis* of similar height, with a pyramidal *Erica Sindyana* between them. In front of these were *Nepenthes distillatoria*, loaded with pitchers, *Cissus discolor*, clothed with foliage of remarkable beauty, and between them *Oncidium*

Asparagus; while on the front or bottom shelf were *Platycerium grande* mounted on inverted pots (which, however, would have looked better had they been hid among moss or Lycopods), and on one side of it was *Aphellexis macrantha purpurea*, and on the other, *Erica ventricosa magnifica*, one of the very best of the class to which it belongs. On the left side of this centre piece were *Gardenia Fortuni*, with white flowers, large and double, and emitting a most delicious perfume; *Angioplexis erecta*, and *Nephrolepis davallioides*; a purple-coloured *Azalea*, a yellow *Heath* (*depressa*), two variegated Screw-Pines (*Pandanus*), the scarce *Nepenthes laevis*, *Erica elegans*, *Lycopodium stoloniferum*, the rose-flowered *Adenandra fragrans*, and *Caladium pictum*; while on the right side were the Box and Oleander-leaved *Eriostemons*, *Philodendron pertusum*, *Polygala oppositifolia* (not in flower), a yellow *Heath* (*Cavendishii*), a variegated Screw-Pine (*Erica Westphalingia*), *Caladium hæmatostigma*, a species with leaves spotted with red, and *Dendrobium nobile*. The two sides of this group gradually fell from the centre to the extremities, and it will at once be seen that they were nicely balanced as regards colour. (*To be Continued.*)

THE CHINESE PRIMROSE.—What more useful flower have we than this? My greenhouse at the present time is as gay as it well can be with well-grown plants of all the best varieties of it. Some of my sorts, all of which I raise from seeds every year, have flowers which measure upwards of an inch and a half across, and in colour are of a deep glowing crimson. The beauty of a fine head of such blossoms may therefore be better imagined than described. Fine blooming plants of the Chinese Primrose, that will continue in flower through the whole of the winter months, may be produced as follows:—In order to obtain strong plants, the seed should be sown not later than the 1st of May, in a well-drained store pan, in a light sandy soil, and put into a cool frame, as near the glass as possible. When large enough to be pricked off into store pans, the young seedlings should be allowed a square inch between each plant; when that space has been filled, let them be potted singly into three-inch pots, and as the pots become filled with roots, shift into a size larger pot, giving them their final shift into six-inch pots in the early part of September. The compost in which I have found these plants to thrive best has been equal parts turfy loam and leaf-mould, and a little sharp sand. While growing, a cool pit or frame suits them best; give plenty of air, and be careful not to over-water them. Treated in this way the plants will be in flower by the middle of November, and will continue in blossom through the winter and spring.—*A Practical Gardener.*

GESNERA ZEBRINA.—The capabilities of this splendid and useful plant for winter blooming are not generally known and appreciated; indeed, with a little care, masses of this rich velvety-leaved plant may be had in perfection when other flowers are scarce, and in a warm conservatory all the winter. It will succeed admirably under the following treatment. About the middle of February plant the scaly bulbs singly in three-inch pots, in a compost of two parts fibry peat, one part turfy loam, and one part charcoal and silver sand, incorporating the whole well together. Place them in a frame or pit in a gentle bottom-heat, and when the atmospheric heat is about 60°. When the plants have reached between two and three inches in height they may be transferred at once to the pots in which they are intended to flower. Collect the desired number of fourteen-inch pots, taking care to secure good drainage by using plenty of crocks and charcoal, and employing the compost as before, only in as rough a state now as possible. Place five plants in each fourteen-inch pot; but, for the sake of variety and convenience for the drawing room, etc., some may be planted singly in nine-inch pots. When the operation of potting is completed, rearrange as before, watering well to settle the soil about the roots of the plants; afterwards a sprinkling will be sufficient for some time, shutting up early in the afternoon. A slight shading will also be necessary in bright sunshine. As the plants advance in growth they will require more water, and occasionally weak manure-water may be used, particularly when they show signs of blooming; they will also require to be staked; and when five are in a pot, to be tied out, in order to make fine specimens. As they come into bloom they should be removed to the conservatory, which will require to be kept rather close for a few days. Afterwards more air can be given; but always avoid cold currents. The following plan, which is simpler, I have found to succeed equally as well as the above. Start the bulbs in pans, and after they have attained the proper size, plant and treat them in every respect as before. By putting in a succession

a month later, these early plants can be had in full flower all the winter; and indeed I may say all the year. After they have done flowering, and the leaves have begun to shrivel, they may be gradually dried off and allowed a season of rest.—*J. Russell (Gardeners' Chronicle)*.

BRIEF REMARKS, &c.

BRACHYCOME IBERIDIFOLIA flowers freely in the open border, but is impatient of wet; at the latter end of the season it may be lifted, and being carefully potted, may be placed in the greenhouse, where it will continue to bloom beautifully. There are many varieties of it, differing in colour and size, particularly a lilac and white, and in these the flowers differ much according to their age; but there are varieties of it of every shade of blue and lustrous lilac, with considerable diversity in the shape and size of the flower-heads.

ON THE APPLICATION OF CHARCOAL IN THE SOIL IN WHICH PELARGONIUMS ARE GROWING.—In the early part of last spring I saw an article in the *Cabinet* recommending bits of charcoal to be mixed in compost used in pot culture of plants. Having a quantity of young Pelargoniums to pot, I adopted the plan by sprinkling about one-eighth with the rich turfy loam and vegetable soil, and, having a free drainage, nothing can exceed the deep green beauty and vigour of the plants at this time.—*An Amateur*.

OF THE MARKS THAT DISTINGUISH SPECIES, or that indicate the existence of a specific power in plants specifically distinct, the principal are, difference in form, proportion, magnitude, colour, taste, smell, duration, fertility, and time of reproduction; but as it has been found that specific differences depend more upon a difference of structure or form than upon any other perceptible difference, it is agreed therefore that a difference in form is the most eligible and sure mark of specific distinction.—*A Botanical Professor*.

GENTIANA ACAULIS.—Last year attention was called in the *CABINET* to this beautiful blue-flowering spring ornament, and it was recommended as an edging for walks. I procured a quantity at 3d. each, and planted the walks of a small flower garden with it, and ever since the middle of March it has been in profuse bloom. My soil is a sandy loam, in which it thrives well. As a successor to the Gentian when out of bloom, I had a quantity of what the Editor of the *CABINET* advised as one for the edging of a flower-bed in summer, viz., *Lobelia erinus grandiflora*, and I planted a row of it close behind the Gentian, and now (May 18th) it is spreading among the same, and coming into bloom, and with its lovely blue and white spotted flowers, I doubt not, will be a pretty ornament to the autumn.—*Lucy, Cirencester*.

FLORAL OPERATIONS FOR JULY.

FLOWER GARDEN.—July is proverbially hot and dry; it will therefore be highly necessary, during the continuance of dry weather, to administer copious supplies of water. This should be done towards the evening of each day, because the plants have then time to absorb the water *gradually*, and appropriate such portion as contributes to their well-being. It is only in extreme cases that water should be given in the morning, because it is then so quickly exhaled from the soil, as well as the leaves, that its refreshing and nutritive properties are almost wholly wasted. Rain-water is best, or that from an exposed pond or tank. Where beds of plants have been repeatedly watered through a rose, the surface of the soil will probably have become *crusted* and almost *impervious* to moisture; consequently they ought to be stirred over occasionally with a small fork. A few annuals, as *Mignonette*, etc., may now be sown to bloom in the autumn, also biennials to bloom next year.

FLORISTS' FLOWERS.—*Auriculas* and *Polyanthus* should be kept in the *shade*. At this season of the year the plants are often attacked with green fly; dip the plants in a solution of tobacco-water. *Tulips* will have perfected their growth, and should now be taken up, as if allowed to remain too long it invariably acts prejudicially

on the bulb. *Ranunculuses* will require to be taken up as soon as their foliage has become withered and dry. *Pinks* may still be piped. *Carnations* and *Picotees*: as the pods are fully formed and ready to open, secure them round with a ring of India-rubber, gutta-percha or bass, to prevent their bursting on one side. When blown, they should be shaded. Never suffer the plants to flag for want of water. Proceed with layering. *Dahlias* will require *thinning out* freely as they advance in growth. If sprinkled over-head with soft water late in the evening, with a fine rose or syringe, their luxuriance will be greatly promoted. *Pelargoniums* that have shed their flowers should be cut down, disrooted, and potted in smaller pots, keeping the plants for a week in a close frame, to assist them in developing their new shoots. *Roses* may now be budded, moist weather being best for the operation. It is of importance that there should be a resemblance between the bud and the stock as to the vigour of vegetative growth, in order to ensure a successful result. If a Rose of slow development is budded on a rampant brier, and all the strength of the latter is turned into the parasitical stranger, health cannot be maintained, nor will a freely vegetating Rose submit to be impeded in its progress by a sluggish stock. Thin away surplus branches from all stocks not budded, as early as possible, not to wait a day even, but get the branches strong and healthy.

FORCING STOVE.—Where stove and greenhouse plants afford suitable cutting, propagation must now be pursued; as, generally speaking, it can be practised with the greatest success in the *early* rather than the *later* part of the year. It should be remembered that the propagation of most plants is facilitated by the employment of *bottom-heat* and *bell-glasses*. Stove plants will derive great advantage from a partial shading during the glare of the day, and will be less liable to injury from drought. Many plants that will require shifting, such as *Justicias*, *Clerodendrons*, etc., give plenty of water at the roots, syringe daily, *in the evening*, and keep the floors of the house and every part damp, to assist in maintaining a humid atmosphere. Bulbs of *Amaryllis*, etc., should be put together in a pit or frame, where they will be near the glass, and where the influence of the sun, with a gradual diminution of water, will mature them. Never permitting the foliage to flag is a good criterion as to the quantity of moisture plants require; keep as near that state as possible. Repot *Achimenes*, *Glorias*, *Gesnerias*, etc.

GREENHOUSE, ETC.—As a free ingress of air must necessarily be permitted during fine weather, its rapid circulation, conjoined with active solar heat, must cause a rapid evaporation both from the plants and soil; hence there exists a necessity, under the above circumstances, of watering and syringing frequently. However beneficial a screen may be during bright hot sun, its presence is not required while the sun is obscured. Encourage the growth of *Azaleas* and *Camellias*, by keeping them comparatively close (with shade during sunshine), and supplying them liberally with moisture administered by the syringe. Propagate *Roses* by cuttings from those plants which have been forced, and place the plants in a rather *shady* situation, in order that they may have a period of *rest* for a few weeks. *Calceolarias* that have ceased blooming should be repotted; cut off dead tops; place the plants in a situation where they can be *shaded* from hot sun, admitting it morning and evening. Seed should be sown so as to have the plants strong, to endure winter; such will bloom next season, and be much more vigorous than plants raised from cuttings. *Cinerarias* also that have done blooming should have the tops cut off, be fumigated, in a close frame, as they are often affected with green fly; after which the plants should be turned out of the pots, and planted in a somewhat shady bed of good soil in the garden. Sow seed now; the young plants will bloom early next spring. *Epacris*, *Ericas*, etc., now done blooming, may be cut in, to render them bushy. The tubers of *Tropæolums* which have ceased blooming, and the tops withered, must be taken out of the soil, or be kept in a bag, etc., or the pot must be put aside, where it may have the soil kept dry till potting time. Greenhouse plants placed in the open air in pots should have frequent waterings at the under side of the foliage, to destroy or keep down green fly. Moss laid lightly between the pots keeps the roots somewhat cool, and tends to promote the health of the plants. Occasionally water the moss, if the weather be hot and dry. A concrete floor, or one formed of lime rubbish or fine gravel, cemented together with gas tar, is essential to keep the worms out of the pots.



GENETYLLIS MACROSTEGIA.

The Floricultural Cabinet.

AUGUST, 1855.

ILLUSTRATION.

GENETYLLIS MACROSTEGIA (LARGE INVOLUCRED).

WE have frequently had the pleasure of recording the name of the VENERABLE DRUMMOND, in connection with the discovery of many of the most handsome flowering plants which have been introduced into our own country, and the one we figure in our present number is another beautiful acquisition thereto. During the excursions he made in Western Australia, into the interior of Swan River Settlement, he discovered two species of *Genetyllis*, of which he spoke in raptures, considering them among the most interesting and valuable of his discoveries. Subsequently seeds have been obtained, and plants bloomed in this country, which have fully borne out Mr. Drummond's eulogies. Some of our readers will recollect having seen and admired the plants which have recently been exhibited by Messrs. Backhouse, of York, at the Horticultural Society's Rooms, in Regent Street; and by Messrs. Garraway & Co., of Bristol, at the exhibitions held at Gore House Grounds and Chiswick Gardens, at which places they attracted universal attention.

Genetyllis macrostegia has by some been called *G. fuchsoides*. It is a *hardy greenhouse shrub*, having the general appearance of some of the *Pimeleas*; it grows about two feet high, much branched, and forms a neat, erect, bushy plant. It blooms in *profusion*, almost every branch terminating with a flower, as well as other blossoms springing from the sides of the shoots. The foliage has a very agreeable aromatic fragrance, similar to some of the *Diosmas*. The plant grows freely in a compost of good peat and silver sand, with a little charcoal intermixed, and a moderate supply of water, especially in winter; a liberal drainage too is essential: it also requires plenty of *light* and *air*. It continues in bloom for several months, and the more *hardy* it is treated, the brighter the colours of the flowers are. Persons unacquainted with the family of plants to which this belongs suppose the five outside parts of the flower to be the true *corolla*, whereas they are *floral leaves*, which shelter and conceal from view

ripen with us most abundantly. In the cultivation of *maculata*, it is requisite to thin out the shoots to two or three at most by which they will grow between two and three feet high. This spring, in shifting a large plant of *maculata*, I removed all the smaller suckers, one of which I put in a sixty-pot, in sandy peat, merely putting a little white sand round the stem and plunging it in a hotbed without a glass; it is now beautifully rooted. I write this to show with what ease they may be propagated.

POPULAR ERRORS WITH REGARD TO BLIGHT.

BY A PROFESSOR OF NATURAL HISTORY, KING'S COLLEGE, LONDON.

THERE are few words of more vague import, or less understood, than *Blight*, which is popularly referred to some mysterious state of the air or winds, which may not only produce inflammation of the face and eyes, but is confidently believed to have the power of generating millions of insects, or, at the very least, carrying them about, no one knows whence or wherefore; though it would be equally correct to suppose this same blighting wind or air capable of generating or carrying about a flock of sparrows or a herd of black cattle. This blight has been described by some to wear the appearance of a haze or blue mist, or a sultry, purplish, or orange tinge in the air; while others promulgate certain fancies, equally unfounded and absurd, about its containing and depositing honey-dew, or being caused by electricity. That these notions are not confined to the vulgar and uneducated is proved by their having found their way into works of respectability and talent. In a work, for example, lately published, and distinguished for considerable ability, though full of fanciful theory, I find the following singular passage. In "those singular collapses and accumulations called a *blight*, which cause them to become opaque and visible to the eye, the air itself becomes for miles suddenly filled with myriads of animalculæ, unseen before, and *unproduced by parents of the same sort*, which must, out of certain of these elements, first radiant and next gaseous, liquid and solid, collapsing and condensing, *suddenly and spontaneously have been formed.*"

Were this a mere theoretical fancy, unconnected with practice, we might leave it to be admired by the theorists without remark; but as it is not so, I shall briefly show the errors into which it leads. As far as insects are concerned, I am quite certain that all accounts of *blight*, similar to the preceding, are sheer nonsense; though there can be no doubt that cold winds, easterly or northerly, will produce inflammation of the eyes, and shrivelling and browning of the leaves of trees and hedges, as sultry, thundery weather may sometimes effect. Insects being proved, by extensive minute and accurate experiments, from the time of Redi downwards, to be invariably

hatched from eggs laid by parents similar to themselves, it is utterly impossible they can be generated by any state of the air. It is no less impossible, though it has been asserted, that the eggs of insects are floated about by blighting winds; for insects, with few exceptions, not only glue their eggs upon the leaves and other substances where they are deposited, but even were the glue dissolved, and the eggs detached, they are far too heavy to float in the air, or be carried away by the winds.

Here, then, is the practical error; and a gardener or a farmer who believes in the mysterious power of blighting winds to generate insects concludes that it is as hopeless for him to endeavour to prevent the increase of these insects, as to try to chain the winds supposed to produce them. Whereas the fact is that these insects are all hatched from eggs which have been laid the preceding autumn, or early in the spring or summer; and if he had been on the look-out for these eggs, he might probably have discovered a considerable portion of them, minute though they be, and by destroying them have thereby saved his crops from depredation.

The sudden appearance all at once of so many insects, which gives some plausibility to the popular errors respecting blight, arises from the eggs being all hatched at once, or at least within a few days.

In consequence of their minuteness and the peculiar places where they are concealed, it is difficult and often impossible to discover the eggs of optrides; but it is comparatively easy to find the eggs of leaf-rolling caterpillars, of which the rose one is poetically celebrated, as the "worm i' the bud," and those which commit such ravages on oaks and currant trees are readily found in little, whitish-grey, round patches, about the breadth of a finger nail, or a card-wafer, firmly glued to the bark. If these be cut off during the winter, no blighting wind will be able to generate a single insect of that species, any more than to create a brood of chickens without eggs.

It is true that when plants are attacked by hosts of such insects, the excrement, etc., spreads over the foliage, which is generally termed honey dew, and which in proportion to extent is injurious to vegetation, flowers, and fruits. The remedies are by destroying the insects with smoke, or forcibly washing the foliage over and under with tobacco-water, thin size-water, or glue-water, and after a few days wash them over with pure lime-water, or clear water. Not only does the size or glue solutions destroy the insects, but it neutralizes the poisonous properties of the excrement of the insects.

RAISING ROSES FROM SEED

BY AN OLD PRACTITIONER.

In recent numbers of the FLORICULTURAL CABINET I have noticed the observations on hybridising various plants, with a

view to the increased improvements of the various genera of ornamental plants. I have for several years directed my attention to raising ~~plants~~ from seed, and my efforts have been successful in raising some of the finest new Roses which now grace our best collections.

During the months of September and October I repaired to several first-rate nursery collections of Roses, in order to see which kinds, in each class of Roses, bore fruit the most freely, and ripened the earliest; and I then procured several of each class, which I planted at the proper season. These bloomed the following summer, and having a very extensive collection of nearly all the finest double Roses, I carefully selected *farina* from the best of the double flowers, and impregnated the fruit-bearing kinds therewith. The fruit-bearing flowers are generally not quite double, and I found it to be of use to thin out the larger trusses of flowers, so as to leave about half a dozen in a head of the plumpest buds.

In the process of impregnation, just as the flowers to be impregnated are expanding, I cut away the anthers therein by means of a small pointed penknife or scissors, this prevents natural seedlings being produced from the kind. Where I had a specific design in the impregnation of any two kinds, after the operation had been effected, I tied a piece of fine gauze over the head of bloom, to prevent access of bees, etc.

In autumn, as soon as the seed was ripe, I had it gathered and placed in gauze bags, and so kept in the seed-vessel till required for sowing. Early in spring I sow the seed thinly in boxes, and place them in a gentle heat in a common frame, keeping the soil moist, not wet, till that portion which then pushes appears to have done entirely for that season. When the plants can be safely transplanted I have them carefully taken up, and planted in a rich soil and warm situation in the open garden, where they remain to bloom. The general quantity of the seed does not come up the first season, but remains to the second. I therefore have the boxes kept just moist, till the end of the summer, and then remove them into a dry place during winter. Early in spring place them in a gentle heat, and all the good seeds soon push forth plants, which are treated as before named. Seed may be quite successfully treated by sowing in the open border, having it in a warm situation, and keeping it moist by covering the bed over with moss, etc. Two years are required here, as in the former named instance, to get up the whole. During winter I usually spread dry leaves betwixt the plants that come up, and remain in the seed bed, so they are secured from injury by frost, being yet tender; this protection is removed at the spring. Moss or tanners' bark may be substituted for dry leaves, where the latter are objected to.

I have paid particular attention to crossing the most *distant classes*, as well as to obtain kinds which will bloom the *longest period*, and to get *fine-coloured, fragrant, and very double Roses*.

THE accompanying handsome designs of geometrical flower gardens are admirably adapted to be placed in close contact with the dwelling-house, greenhouse, or other similar structure, where they would form an harmonious appendage thereto, constituting a *union* between the

beings, and the grounds, and at the same time present from the
 various display of varied green foliage and the
 the gay-coloured flowers. The walks should be made
 of gravel, and if they are covered with gas-tar and the gravel should
 be free from weeds, and dry to walk upon. The
 formation of such walks in previous volumes of this
 The edging to such walks and beds may be
 tiles, or with pieces of oak wood two to three inches thick,
 rounded at the top edge, and six or eight inches deep; four inches
 of it to be dipped in coal-tar, and buried in the soil, leaving two
 to three inches above the earth and walk to form the edging. That
 part of the edging above ground should be painted stone or other
 suitable colour; after giving it a last coat of *thick paint*, whilst
 wet, sprinkle it nicely over with silver white sand, or some of a
 yellowish stone colour, and it will form a remarkably neat edging,
 and very similar to stone in appearance. It will last for many years;
 the exposed part is easily painted, etc., at a trifling cost too, and
 thus always have a neat appearance. Dwarf Box, or some of the
 dwarf hardy Heaths form neat edgings; the latter are especially pretty
 when in bloom.

The present gardens, too, may be laid out on the grass, upon a
 suitably extended scale, so as to admit of the scythe or grass-cutting
 machine being used between the beds. Of course, grass paths are
 not at all times dry, but they have a cheerful appearance.

Such gardens being an appendage to an architectural building, may
 properly be ornamented by vases, etc.

TREATMENT OF THE COBÆA SCANDENS.

BY CELINE.

If you think the following remarks worthy of insertion, I shall be
 proud of contributing a mite of knowledge through the medium of
 your valuable work.

About the beginning of August I look over the plant and take off
 as many cuttings as I think necessary, allowing for a few to fail. I
 insert them, seven or eight in a pot, in loam and sand. I plunge the
 pot to the rim in bark (this is four or five years old), in a cool frame,
 and give very little water till the cuttings begin to grow. As soon
 as they have pushed shoots an inch long I remove the pots to the
 greenhouse for two or three weeks, by the end of this time they are
 pretty well rooted. I then pot them off separately in sixty-sized
 pots, and return them again to the greenhouse, where through the
 winter they are treated as greenhouse plants. About the beginning
 of May I turn them out of doors (a full south aspect I chose) against
 a trellis forty feet high, fastened against a house. The border is
 dug out to about thirty inches deep, and filled up with a mixture

[illegible]

REMARKS ON THE OLD DOUBLE YELLOW ROSE.

BY AN ARDENT ADMIRER.

OBSERVING in the FLOICULTURAL CABINET that you desire to have some account of the Double Yellow Rose from any place where it blows well, I therefore inform you that there is a tree in my garden noted for producing perfect flowers. It is now in high perfection in full bloom; this is the eleventh season it has blown under my care. It appeared to have been much neglected when I took it in hand. It is in a south aspect, the soil is naturally poor, in general not more than a foot deep before we come to the rocky stone. I increase them easily by layers from the old plant, and have sold hundreds since I have been here. Potted plants 1s. each, transplanted in beds 6s. each. I give the ground a good dressing of manure every year, when I take up the layers, and have the old tree pruned every season, much the same as I do bearing peach-trees. I have had a basin formed round the root to hold water, lined with stable manure to keep the soil moist; three times a week it has copious waterings, twenty gallons each time during this hot dry weather, which no doubt caused the old tree to produce such extraordinary fine specimens of bloom this season; dry hot weather and plenty of water is what the tree delights in.

THE SALVIA SPLENDENS.

BY SENEX.

THE observations of your correspondent in the July number on the

cultivation of the *Salvia splendens* will be useful to individuals possessing large hothouses, but can be of no service to those who have only the convenience of a *small greenhouse* or *conservatory*, yet are desirous of growing and flowering this fine plant. I will therefore subjoin a few directions, by which the wishes of this last class of persons may be easily and readily accomplished.

Your correspondent recommends plants from six to eight feet high; and to obtain this object, he strikes his plants in May, and throughout the summer keeps them in the heat of the hothouse. Now it strikes me that the neglect into which this *Salvia* has fallen, is attributable to the *size* which the plants attain when propagated so early in the year, and afterwards heated in the way advised. For if the cultivator is desirous to prevent them from becoming so large, and therefore confines them at the roots, they grow tall, straggling, and unsightly, and moreover will seldom flower. To avoid the inconvenience of large plants, and to obtain suitable-sized for a small space, at the same time also handsome flowering ones, put in the cuttings about the third week in August, place them in a gentle hot-bed or in the greenhouse (they do not require to be covered with hand or bell glasses), and after they have struck root, which will be in about a fortnight, pot them off into forty-eight-sized pots, using any rich light soil; afterwards keep them in the greenhouse, and when about six inches high nip off their tops, they will soon shoot out again, and will come into flower at the end of October, at which time they will be about two feet high, and will continue in full bloom till January. The *S. splendens* cannot be preserved through the winter in the temperature of the greenhouse; therefore, after the plants have done flowering, throw them away, unless you have the means of saving two or three to serve for stocks next season; otherwise you must depend for cuttings on your more fortunately situated friends.

I beg to observe, too, that Mr. Williams may grow large plants of the *S. splendens* with much less trouble by the following plan, than by the one he at present practises. Let him strike his cuttings in March, pot them off, place them in the greenhouse, harden them to the air by degrees, and when all danger from frost has passed, plant them in the open ground. As soon as the flower-buds appear, the plants must be taken up with as large a ball as possible, and planted in a pot or tub of a corresponding size. They must then be well supplied with water, and returned into the hot or greenhouse, where they will soon recover from the effects of the transplanting, and will flower beautifully and abundantly. These plants will be about five feet high, and proportionately bushy; indeed, the *S. splendens*, when treated in this manner, assumes a regular and handsome habit. If the side shoots are taken off during summer, plants with heads like Standard Roses are easily obtained, and placed in a collection of other plants the heads can be shown above them.

In a warm summer and autumn the *S. splendens* will flower very beautifully, if planted on the open border.

TREATMENT OF IXORAS.

BY MR. JAMES CARSTAIRS, GARDENER, LANGDEN HALL, KENT.

MY treatment of IXORAS has been so successful in having most extraordinary blooming plants, that I have been requested to send the particulars of it for insertion in the FLORICULTURAL CABINET, and which with pleasure I now do. I procure cuttings of the ripened wood about July, and plant them in five-inch or six-inch pots, which are found to be the most convenient size; these are nearly half filled with broken potsherds as drainage, a little rough peat is added, and the remainder is filled up with silver sand, into which the cuttings are inserted. The pots are plunged in a tan or other bed, where they will have bottom heat, and can be kept close. If the cuttings get too damp, the glasses are removed for an hour or two, and then replaced. With a brisk moist heat they will root in about five or six weeks (sometimes sooner), and may then get a little air for two or three days, after which the glasses are removed altogether. If they are found to flag after removing the glasses, they are replaced for a short period. As soon as they will stand without the glasses, they are potted singly into three-inch pots, and placed in a frame, hotbed, or stove. If in the latter, they have a hand-glass put over them until they make fresh roots. The points of the shoots must be nipped off, to make them bushy. In selecting cuttings make choice of those with short joints, as they make the best specimens. If they are rooted in a brisk heat previously to July they have a shift, but that entirely depends upon circumstances; generally it is best to let them remain in the small pots till the following February, when they may be shifted into six-inch pots, and placed in a light, airy situation, and where they will experience a *gentle bottom heat*, which is essential to success. During the time they are growing they require plenty of heat, air, light, and water. If air is not freely admitted in the growing season they are apt to become weak and spindly, in consequence of which they will either produce weakly blooms, or none at all; but with a temperature of from seventy-five to eighty degrees, with plenty of air, and shifted in February, they will produce short-jointed and well-ripened wood by September; after which they will stand in a temperature of fifty degrees until they are wanted to flower. By attending to this course of treatment an early and good bloom will be secured. The soil I use is composed of two-thirds turfy peat, one-third turfy loam and Reigate sand, using it as rough as possible; the larger the plants, the rougher the compost is required. Water must be used sparingly in winter, and more freely as the season advances and a higher temperature is required, which will be about the middle of January. Increase the heat as the season advances. If the plants are wanted for *exhibition*, and they are advancing too fast, remove them to a cooler place, but this must be done before a single bloom has ex-

panded, the flowers being liable to drop then, on a sudden transition. After the blooming is over they will make their growth, set their blooms, and be prepared for a lower temperature during the winter. With proper attention they may be had in flower almost at any time in the year. I was advised to try the one-shift system, but it proved a failure. My practice is to shift *progressively*, removing the plants from a three-inch to a six-inch pot, and from that to a nine-inch one and then to a twelve-inch one, and so on. *Ixoras* are liable to be infested with all kinds of insects, such as the thrip, white and brown scale, mealy bug, green fly, and red spider. If the plants are well syringed at favourable opportunities, both *under* the leaves as well as *over* the top of the plant, and not half done, the insects will be kept travelling, and will never do any mischief. It is when they lie up unmolested that they injure the plants. I have used thin size-water, sprinkling the plant over and under, or small pots I dipped overhead. This always destroys the insects. I wash them freely in pure water two or three days afterwards. If the method of treatment I pursue be duly attended to, and in addition to giving a good supply of soft water at the roots during the growing season, and once a week a good soaking of liquid manure, every shoot will have a fine head of flowers. I have had some nine inches across.

REMARKS ON HYBRIDIZING PLANTS.

I HAVE noticed in the CABINET, from time to time, remarks by the conductor on encouraging the hybridizing of various classes of plants, and which induced me to turn my attention to the process last season with the *Amaryllis*, *Achimenes*, *Verbena*, *Fuchsia*, *Phlox*, *Pelargonium*, and others. Some of the seeds I obtained early last summer I sowed immediately, and the others early this spring, and now I have, as the result, very numerous, and in almost endless variety, beautifully distinct flowers of the above, with the exception of the *Amaryllis*. The process is easy,—applying the pollen of one flower to the stigma of another. The flower to which the pollen is about to be applied must have its own anthers (containing the pollen) cut away before they burst, after which, the pollen from the different plant may be applied to the stigma. If the pollen of the plant to be operated upon is not cut away, the stigma is likely to be operated upon by the pollen of the same flower, and the result be natural seedlings. The stigma, when in a proper state to have the pollen (powder-like) applied, is glutinous outside, and the powder adheres to it. I have noticed that no certain criterion can be relied on as to the form the new plant will take; sometimes I find that the male (pollen) plant is assumed, and in others the contrary. I uniformly found that the more perfect in form both parents were, so was the production. As it respects the colours, I have not had two alike from the same plant; when all

the flowers on a plant have been operated upon by pollen, from one plant, the most decided, strong, and clear colours give the more distinct in the progeny. It is only by observation, in the progress of the operation and blooming, that the best results can be safely expected in future attempts as to colours, but in form, where the flowers of both are of fine form, those raised therefrom will certainly be good. As far as the majority of my one year's experiments go, I find, *in colour*, the seedlings partake more of the mother plant; and *in form*, that of the plant from which the pollen was brought.

The entire process, from first to last, has afforded me much gratification, and those persons fond of flowers will derive pleasure in its pursuit. The results of but a few years' application to the system of hybridizing has already added immense charms to the beauties of the stove, greenhouse and flower garden, as well as to fruits, and the process being now adopted on a far more extensive scale, in a few years we shall, no doubt, have quite astonishing results to grace our floral exhibitions, as well as domestic compartments.

A QUESTION WHETHER THE PUBLICATION OF THE SUCCESSFUL OR UNSUCCESSFUL PRACTICES OF GARDENING CONTRIBUTE MOST TO THE IMPROVEMENT OF PRACTICAL READERS.

BY SENEX.

It is often observed that the faults and fooleries of others operate more impressively as warnings, than the recital of success acts incitively to greater care and vigilance. There is a rankling sting and dread about the first, much more intense than any emulative feeling consequent upon the contemplation of the second. Hence it has been held that if all failures, and the cause or causes of them, were faithfully recorded, much good would accrue, as such information would act like a beacon to guide inexperience along the safe path of practice.

But how can it be expected that the most candid writer could calmly sit down to publish his own errors? A sense of public duty is rarely so predominant as to induce a man to acknowledge voluntarily his own want of foresight, of care, or of skill. This indeed can hardly be expected; but, nevertheless, such reports would be very useful, and, to an ingenuous mind, a frank confession would leave no uneasiness, nor would it be any disgrace. Failures will happen, in spite of the highest talent, unceasing care, and the most consummate skill. This is a fact universally admitted, and therefore no odium can attach to a mere error of judgment, or to the occurrence of an event over which the superintendent had no control.

In another point of view, the sooner professional errors are acknowledged, and even published, the better; because, if made in the management of particular flowering plants, shrubs, wall-fruit trees, for instance—as planting too deep, or in their disposition, as placing them too near together (these being permanent objects)—the error is sure to be detected sooner or later, and perhaps reported by visitors, from whom it always comes ungracefully, and too often unfaithfully.

It may be said, however, that if a man write at all, it will probably be of some successful exploit of his own; and if truly and minutely enough described (and not arising from circumstances purely local), it answers as well as if he had written of an unsuccessful experiment, because the latter may be inferred from the detail of his successful practice.

Gardening has been less subject to be disfigured by erroneous or irrelevant writings than its sister art *Agriculture*, not only because it is an employment more definite in execution, but also because its professors are more on an equality among themselves—is less invaded by amateur scribblers, and its practical excellences or defects more universally known. This happens in consequence of their fraternal intercourse with each other, from the custom of the juniors passing from one celebrated place to another in pursuit of their business, and from their general character as reading men. This character gardeners have long enjoyed; and since gardening periodicals were set going by the indefatigable men of twenty to thirty years ago, literary gardeners and gardening have very much increased. That such periodicals are serviceable to mankind in general is undeniable; and though their contents are neither *always new*, yet, among other things, they go far to answer the question at the head of these remarks; not indeed by the insertion of voluntary admissions of failures in practice by the unsuccessful practitioners themselves, but by criticism of neighbours and tourists, whose communications, if candidly and courteously written for the sake of professional truth, are sure of a place in those periodicals.

Criticism on what is done or omitted to be done *by others* has often a snarling, carping kind of aspect, and too frequently gives offence to the parties or places pointed at, more especially in matters of taste; in this affair, every man has what he calls his own, and should certainly be allowed to enjoy it undisturbed, provided he does not impose it on others. Censure on the want of space or of high keeping in gardens is much oftener caused by the *want of means* than by the want of either taste or of propriety. Such circumstances are not legitimate objects of criticism; but on *principles of practice*, or of their *right or wrong application*, every one may exercise his own judgment, and freely canvass men and measures, as may appear to him necessary for banishing error or for the maintenance of truth. This gives periodical publications, whether on arts or sciences, an inquisitorial character; and while kept pure from low abuse and

frivolous petulance, raise them in the estimation of readers into a kind of tribunal to which all will cheerfully pay a due deference.

Viewed in this light, periodical publications have a peculiar value. Any error which may creep into one number is pretty sure of being corrected in the next or some following one; and as refutation must be accompanied with some discussion *pro* and *con*, facts are elicited or new ideas broached, which, but for the first mistake or misstatement, would have perhaps laid dormant for ever.

REVIEW.

The Favourites of the Flower Garden. By G FRANCIS, F.L.S.
London: Simpkin, Marshall, & Co., Stationers' Hall Court.

MR. FRANCIS has long been an authority in floral matters, and this very interesting and useful book additionally confirms his reputation, also increases the obligation owing to him by both amateur and practical gardeners. It is full of useful information, and ought to be the companion of all who delight in possessing an ornamental and well-managed flower-garden throughout the year.

It is a very cheap work, and thus placed within the reach of all persons. By the following extract our readers will see the nature of its general contents.

3.—EVERLASTING. *GNAPHALIUM.*

SAND EVERLASTING. *Gnaphalium arenarium.*

This is the plant alluded to in page 71 as that which in all probability was the one called Amaranth by the ancients, and which is still to this day called by the French *Immortelle*. It is used by them, as it was in former times, to decorate tombs, and as an emblem of immortality, which the unchanging nature of the flowers would naturally suggest. These are about the size of peas, and grow in clusters on a downy and leafy stem, six or eight inches high. The leaves are small, oblong, blunt, and covered with a white down. The roots spread very rapidly, and by their division the plant may be propagated. The place of growth should be dry, warm, and sandy; the better to imitate its native places, which are the sea-shores of the South and West of Europe. The flowers, which make their appearance abundantly in June and July, and if undisturbed would remain unchanged till destroyed by frost, are gathered when in perfection, and used for the above purposes of decoration, and also in winter or dried-flower nosegays. They are frequently dyed black, green, or red, and as such used as artificial flowers in head-dresses, etc.

Whether this be the true Amaranth or not is doubtful. It is certain that the Amaranth was one of the principal votive flowers of former as well as of modern times. Milton speaks of it as forming the diadem of the angels;—

"With solemn adoration down they cast
 Their crowns, inwove with Amaranth and gold.
 Immortal Amaranth! a flower which once
 In Paradise, fast by the tree of life
 Began to bloom; but soon for man's offence
 To Heaven removed, where first it grew—there grows
 And flowers aloft."

Yet Milton in another place classes it among flowers "that sad embroidery wear;" and Spenser describes the Amaranth as a purple flower. We will let the young botanist puzzle this matter out, being assured that he will feel an interest in a flower, hallowed by being consecrated to departed friends, and which could suggest sweet lines like the following:—

"I sought the fairest and gayest flowers
 Of the new spring's beautiful blossoms!
 And I gathered them at morn's first hours,
 And placed them in childhood's bosom!
 Yet sorrowing there
 The dew-drops hung,
 And the pearly tear
 To the young flower clung!
 I culled the best sprigs of the Rose and Vine,
 By the summer's noon-day sun;
 And twined me a garland for manhood's prime,
 And in truth 'twas a lovely one!
 But withered the Rose
 Ere the day was done,
 And the purple huse
 Of the grape were gone!
 I wandered at night o'er the dreary lea,
 'Mid the wintry tempest's rage,
 And I took of the Yew and the Cypress tree,
 And wove a dark wreath for age!
 And when I arose
 I beheld them wave
 Their sable hues
 O'er the old man's grave!
 Then I thought of the ne'er fading Amaranth bowers,
 Which blossom for ever above,
 And thought me eternity's beautiful flowers
 Must blow in those regions of love!
 And I sigh to reach there
 To twine me a wreath
 Unprofaned by a tear
 Or mortality's breath!"

NOTES ON NEW AND SELECT PLANTS.

102. *GENETYLLIS TULIPIFERA*. Nat. Ord. *Myrtaceæ*. Syn. *Hedera tulipiferum*. This truly beautiful hardy greenhouse shrub was discovered by Mr. Drummond in Western Australia. A plant of it was shown at the Horticultural Society's Exhibition at Gore House,

which formed a neat, rather erect, bushy plant, about three feet high, and as much across, bearing upwards of two hundred flowers. Each branch is terminated with a *drooping* involucre (flower), somewhat resembling a small tulip, about two inches long and an inch and a half across the expanded mouth, white tinged with primrose, and deeply veined and streaked with rosy crimson. It merits a place in every greenhouse or pit-frame. (*Fig. in Bot. Mag.* 4858.)

103. RHODODENDRON RETUSUM (*blunt-leaved*). Nat. Ord. *Ericaceæ*. Syn. *Vireya retusa*. A neat evergreen bushy shrub, growing about two feet high. The leaves are thick, two inches long, nearly oval-shaped. The flowers are produced in terminal umbels, of six to nine blossoms in each. Each flower is tube-shaped, with a slightly spreading five-parted limb (face of the flower); the tube is an inch and a quarter long, and the limb about three parts of an inch across; of a bright scarlet outside, and yellow within. It is a native of *high mountains* in Western Java, where it was first discovered by Blume; and Dr. Horsfield found it in 1818 at Sumatra, at an elevation of 3000 feet, in shady situations. It will therefore succeed in our greenhouses or pit-frames. It is a charming free-blooming plant, belonging to the group of *Rhododendron ferrugineum* and *R. hirsutum*, so well known in our shrubberies. Messrs. Rollison, of Tooting Nursery, obtained seeds of it, and plants have bloomed in their establishment this season. It highly merits a place in every greenhouse. (*Fig. in Bot. Mag.* 4859.)

104. STREPTOCARPUS GARDENII. Nat. Ord. *Didymocarpeæ*. It is a native of Natal, and its appearance is somewhat similar to *S. Rexii*, but nevertheless quite distinct, both in leaves and flowers. The flowers are produced in profusion; *each* floral stem rises six to eight inches high, bearing two flowers; they are similar in size to those of *S. Rexii*, but those of *Gardenii* are of a *pale blue*, whilst the tube portion of those of *S. Gardenii* are *green* or *greenish-white*, and the large spreading five-parted lobes (front of flower) are a *lilac* colour, streaked on the three lower lobes with rich red lines or dots. The tube is two and a half inches long, and the front of the blossom one inch and a half. It blooms profusely in the greenhouse throughout summer. It is rather remarkable that this pretty species, as well as the *S. Polyanthus*, which we noticed last month (page 179), were raised (at Kew) from seeds accidentally contained in soil sent from Natal, with some other plants growing therein. (*Fig. in Bot. Mag.* 4862.)

105. RHODODENDRON CALIFORNICUM. Mr. Lobb sent this handsome species from California to Messrs. Veitch, in whose establishment it has bloomed this season, and plants were exhibited at the Crystal Palace Floral Fête. The plant bears a close affinity in appearance to a small plant of *R. Catawbiense*, but of dwarf habit. The flowers are borne in large terminal heads, each blossom two and a half inches across, of various tints of rose and pink colours, spotted with yellow. Plants about a foot high have (each) several heads of these

most beautiful flowers. This species has stood the winter well in the open ground at the Exeter Nursery. (*Fig. in Bot. Mag.* 4863.)

106. *CHÆTOGASTRA LINDENIANA*. Nat. Ord. *Melastomaceæ*.—This most magnificent flowering plant was first discovered by M. Linden upon the summit of Monserrata, at an elevation of 9840 feet. Subsequently it was found by M. Schlim, in New Granada, and by him sent to M. Linden, in whose establishment it has flowered. It forms a neat bushy plant from one to two feet high; its leaves are about two and a half inches long, ovate-oblong-shaped, five-nerved, very pretty. The flowers are produced in large terminal panicles; each blossom being two and a half inches across, of a rich *brilliant crimson*, and continue to display their magnificence for a considerable period. It blooms profusely, and highly merits a place in every stove or warm greenhouse. (*Fig. in Flor. des Serres*, 1012.)

107. *LOCHERIA (Achimenes) MAGNIFICA*. Nat. Ord. *Gesneriaceæ*.—This splendid plant has been introduced by M. Linden, from the province of Popayan, in New Granada, and has bloomed in his establishment at Brussels. The plant grows from two to three feet and a half high, and is of a strong robust habit. Each leaf is four inches long, ovate-oblong shape; very neat. The flowers are produced in large terminal leafy heads, and are in form similar to *Achimenes hirsuta* and *pedunculata*. Each blossom has a tube one and a half inch long, and the limb (front) two inches across; the flower is of a lively scarlet-crimson, with a yellow throat, and the large limb is beautifully striped and spotted with a deep purple. It is a splendid acquisition, and blooming so profusely is highly ornamental. (*Fig. in Flor. des Serres*, 1013.)

108. *LAVATERA MARITIMA*. Nat. Ord. *Malvaceæ*.—The habit of this showy species is similar to the *Lavatera arborea*, and a somewhat woody, tree-like, very branching plant. It grows naturally on the banks of the Mediterranean Sea, and in the central part of France. It blooms profusely; the flowers are produced in terminal racemes, each shoot terminating with several flowers. Each blossom is three inches across, white, and each of its five petals has a *large* dark violet and carmine streaked blotch, which compose a striking centre. It is exceedingly showy; it will flourish in the open ground in England during summer, but requires to have the shelter of a greenhouse or pit-frame in winter. (*Fig. in Flor. des Serres*, 1007.)

109. *BILBERGIA MARMORATA*. Nat. Ord. *Bromeliaceæ*.—A native of Brazil, and a very ornamental plant for the stove. The leaves (Pine Apple plant-like) are long, the edges curving inwards, green beautifully marbled with a bright chestnut-brown colour. The flowers are produced in a large panicle; the lower portion of each blossom is pure white, and the upper portion a rich blue colour. The branches of the panicle, and the leaves it bears, are of a rich rosy carmine, the whole combining to render the plant highly interesting and ornamental. It merits a place in every hothouse or warm greenhouse. (*Fig. in L'Illustration Horticole* 48.)

110. ALONSOA WARSCWICZII.—It is a neat, half-shrubby, bushy plant, from one to two feet high, but by stopping the leads it may be kept at any intermediate size. It is a profuse bloomer, the flowers being borne in long spikes, each blossom about three parts of an inch across, of a bright salmon-scarlet, with a yellow eye. It is a pretty showy plant for the greenhouse, as well as an excellent bedding plant. Plants may be procured at a cheap price, in the principal nurseries.

111. PAPAVER AURANTIA.—This very handsome flowering poppy has the habit of the Welsh Poppy, grows about ten inches high, and blooms profusely. Each blossom is two inches across, of the richest orange colour. It is a hardy herbaceous plant, and ought to be grown in every flower garden.

MISCELLANEOUS.

HORTICULTURAL FETE, HELD AT THE CRYSTAL PALACE, SYDENHAM, June 2nd, 1855 (continued from page 182).—*Thirty Stove and Greenhouse Plants, grouped for Effect, in or out of flower.* Second Prize, £15, to Messrs. Veitch. This collection was arranged at the west end, extending too on the south and north side-wings, so that the entire collection could not be seen at one glance, which considerably depreciated the effect, though the plants were better disposed in contrast than those of Messrs. Rollicson. This collection was disposed so that it had three principal or centre (down) rows. At the top shelf of the middle group was the noble Tree Fern of New Zealand, *Dicksonia squamosa*, having seven wide spreading branches. In front of it (on second shelf) was a splendid *Cissus discolor*, and below it (on the third shelf) an *Aerides virens*. On each side of the *Cissus discolor* was a *Phalenopsis grandiflora*, in most profuse bloom. These were backed by a yellow *Oncidium sphacelatum* and *Dendrobium nobile*. At each corner there was a *Norfolk Island Pine*, associated with the yellow *Dendrobium densiflorum*, *Cattleya Mossia*, then the two match *Philodendron pertusum* and *pinnatifidum*; two match *Azaleas*, *lateritia* and *coccinea*. On the left of these were the fan-leaved Palm, *Livistona borbonica*; *Medinella magnifica* (a standard); *Lilium giganteum*, six feet high, with twelve of its large drooping white and red striped flowers; *Erica depressa*, with a profusion of its rich yellow blossoms; together with *Platyserium grande*, and *Coleus Blumei*, with its strikingly marked leaves of crimson-brown, edged with green. The right wing had nearly the same kind of plants (match ones) to the above-named wing, with the addition of a golden variegated Screw Pine and the Dragon Tree, *Dracena Draco*. The intermixture of plants not in bloom, but having very beautiful foliage, gave a more striking effect to set off with greater advantage those in flower than otherwise they would have had. The introduction of giving prizes for the best effect in grouping or staging of plants, etc., is a great improvement, and we feel assured that henceforth an advance in this particular will take place throughout the universality of the Floral and Horticultural Exhibitions of this country. In order to a proper arrangement, attention must first be given to the centre of the collection, which must always form the *key* to the structure, whether that key be a single plant or a down row of several steps or shelves. On each side of the centre plant there must be one that will to some extent not only harmonize with it, but in particular do so with its opposite, in form of growth, size, foliage, and flowers. Thus, suppose the plant on the right-hand side of the centre to have *leaves and flowers of a large size*, and its structure a broad bush, as a *Camellia* for instance, it would be improper to have the plant on the left of the centre such as a small *upright growing* Heath, as there would be the opposite of harmony both in form of growth and size of foliage and flowers. The colours of the foliage and flowers may be as different as possible, so they contrast strikingly with those placed next to them, thus the effect would be increased in proportion. A little practice with speci-

mens of shrubs, flowers, etc., will soon point out to the individual what will approximate nearest to perfection therewith, and though at first sight this system of arrangement may appear complicated, it will soon become quite familiar, and readily accomplished. In addition to the first and second prizes in this class there were two others of £7 each and two of £5 each, which were awarded to collections exhibited by gardeners.

Class Second, for Twenty Stove and Greenhouse Plants in Flower.—First prize, £30, to Mr. May, gardener to H. Colyer, Esq., of Dartford, for most extraordinary fine plants of *Epacris miniata grandiflora*, six feet high by six feet across, in profuse bloom. *Dipladenia crassinoda*, grown to a fine bush, and full of bloom. *Eriostemon Nerifolia*, six feet by six. *Epacris grandiflora*, six feet by six. *Aphelaxis macrantha purpurea*, five feet by five. *Leschenaultia azurea*, a superb plant, in profuse bloom. *Pimelea mirabilis*, in profuse bloom, the flowers of a bright rose, in the way of *Hendersoni*. *Gompholobium polymorphum*, formed into a fine bush, and in profuse bloom. *Erica elegans*, very showy. *Boronia pinnata*. *Genetyllis tulipiferum*, the flowers pale, in consequence of being grown in too high a temperature—the cooler its atmosphere the richer its colours. *Azalea exquisita*, covered with its beautiful variegated salmon and white edged flowers. *Rondeletia speciosa-major*, beautiful, with its numerous pendulous heads of tube-shaped orange-scarlet flowers. *Dillwynia nudes sanguinea*, profusely in bloom. *Stephanotis floribunda*, one mass of its fine large heads of pearl-white blossoms. *Leschenaultia formosum*. *Allamanda Nerifolia*. *Phenocoma prolifera*, and *Chorozeema Lawrenceana*. There were several other collections, for prizes of £15, £10, etc. They consisted of many of the above named, and *Acacia grandis*, *Polygala Dalmatica*, *Gardenia Fortunei*, *Ixora coccinea*, and *crocata*, *Cactus coccinea magnifica*, *Erica Cavendishii*, *Medinella Sieboldii*, lighter flower than *M. magnifica*, very fine; *Pteroma elegans*, and *P. heteromalla*. Also fine *Vincas* of the white with red eye, and the rose-coloured. These were fine specimens, and we give the names, in order that our readers may know what plants are calculated to make exhibition ones.

Twelve Best Stove or Greenhouse Plants.—First prize, £18, to Mr. Dods, gardener to Sir John Cathcart, for first-rate plants of *Erica Cavendishii*, *Azalea Decora* (a bright rose), *Erica depressa*, *Chorozeema ilicifolia*, *Pimelea spectabilis*, *Boronia pinnata*, *Azalea variegata*, *Leschenaultia formosa*, *Gompholobium polymorphum*, *Aphelaxis macrantha purpurea*, *Epacris miniata grandiflora*, and *Leschenaultia biloba superba*. The *Gompholobium* was trained to branchy sticks, and nicely arranged so as to form a good bush, being much more tasteful than the old formal mode of a flat-faced wire framework.

Best Collection of Twenty Orchids.—First prize, £30, to Messrs. Veitch, for *Lælia purpurata*, *Cattleya Mossiae*, *Aerides Veitchii*, maculosum, superbum, and odoratum majus, *Dendrobium nobile*, densiflorum, onosmum, and moniliforme, *Oncidium ampliatum-major*, *Phalenopsis grandiflora*, *Saccolabium guttatum*, *Calanthe veratrifolia*, *Cattleya intermedia*, *C. Mossiae superba*, *Cypripedium barbatum-major*, *Vanda teres*, *Sobralia macrantha*, *Vanda tricolor*, and *Cyclogyne Lowii*. The whole were admirable specimens in fine bloom. Second prize, £20, to Messrs. Rollison, for *Aerides odoratum*, *A. affine*, *A. affine roseum*, *A. crispum*, *A. Larpentæ*, *Brassia brachiata*, *Cattleya Aclandæ*, *C. Leopoldi*, *C. Mossiae*, *Cypripedium barbatum*, *Dendrobium Calceolaria*, *D. moschatum*, *Odontoglossum hastilabium*, *Phalenopsis amabilis*, *P. grandiflora*, *Stanhopea oculata*, *Saccolabium guttatum*, *Sobralia Galeottiana*, *S. macrantha*, *Ureopidium Lindenii*. The first prize, £30 (*Amateurs*), to Mr. Mylman, gardener to S. Reid, Esq., of Burnham. Second prize, £20, to Mr. Williams, gardener to C. B. Warner, Esq., whose collections were almost of the previous named, with splendid additions. Prizes were offered for best twelve plants, for which £18, £12, etc., were given.

Twenty Variegated-leaved Exotic Plants.—First prize, £7, to Messrs. Veitch, for *Physurus pictus*, *P. argenteus*, *Coleus Blumei*, *Cissus discolor*, *Maranta roseo-lineata*, *Aloe-leaved Yucca*, *Hydrangea japonica*, *Maranta Warscewickzi*, *Begonia Thwaitesii*, *Screw Pine gold-striped*, *Ruellia maculata*, *Vriesia speciosa*, *Cladadium pictum*, *Calathea zebrina*, *Dracena terminalis*, *Aspidistra lurida*, *Ocrotum pictum*, *Anæctochilus setaceus* and *intermedius*, and *Aphelandra Leopoldii*. There were several other collections which had different from the above, viz., *Duranta variegata*, *Tillandsia splendens*, *Stenorhynchus maculata*, *Dracena Sieboldii striata*, the Java Lady's Slipper, *Pandanus javensis variegata*, *Ananassa sativa variegata*, and *Hydrangea hortense maculata*.

Ten Plants with Fine Foliage.—First prize, £5, to Messrs. Veitch, for *Zamia pungens*, *Philodendron pinnatifidum*, *Berberis Nepaulensis*, *Plectocoma elongata*, *Calamus viminalis*, *Sabal umbraculifera*, *Musa Cavendishii*, *Ceroxylon Andicola*, *Dracæna Draco*, and *D. indivisa*. The above ten, associated with good-sized Palms and Cycads, had a very imposing effect. Second prize, £3, to Messrs. Rolleston, for *Aralia integrifolia*, *Dracæna indivisa*, *D. gracilis*, *Rhopala Estrellensis*, *R. magnifica*, *Lomatia australis*, *Cissus discolor*, *Canna discolor*, *Dioscorea zebrina*, and *Dracæna terminalis*. These were exceedingly interesting.

MISCELLANEOUS.—*Fine Plants*: First prize, £3, for *Cephalotus follicularis*. Second, £2, for *Aphelaxis macrantha rosea*. Third, £1, for *Calceolarias*. Extra prizes, £3, for *Callitris cupressiformis*, a very handsome evergreen Coniferous tree, somewhat resembling *Cupressus funebris* (funeral Cypress), having a beautiful drooping habit; 16 plants of it were exhibited by Mr. Collins, gardener to E. H. Chapman, Esq., of Hornsey. It is one of the most interesting of the tribe. Mr. Kinghorn, of Isleworth, had a seedling *Geranium (Pelargonium)*, in habit like *Commander-in-Chief*, having bright orange-scarlet flowers; a very valuable acquisition. Messrs. Veitch had *Gloxinia Adamia-oculata*, of the erect *Fyflana* section, lilac with white throat; very pretty.

Twelve Greenhouse Azaleas.—First prize, £20, to Mr. Green, gardener to Sir E. Antrobus. Second, £15, to Messrs. Frazer. Third, £10, to Mr. Clark; and three other prizes of £10, £7, and £4. The best kinds shown in the whole were, *A. Extrana*, soft deep rose; *Glory of Sunning Hill*, *Jenkinsii* superba, *Iveryana*, *Griswoodiana*, *Broughtonia*, *Trotteriana*, *Symmetry*, fine form; *Perryana*, *Exquisita*, *Magnifica*, fine white; *Pride of Dorking*, superb white; *Barclayana*, white striped with purple; *Beauty of Reigate*, white striped with scarlet; *Variegata*, and *Orelenon*, in the way of *Exquisita*, of superb form—Mr. Ivery, of Dorking, is disposing of small plants, at two guineas each. The best single specimen was *Iveryana*. Any or all the above are worth a place in every greenhouse or pit-frame.

Six Fuchsias in Pots, Distinct Kinds.—First prize, £6, to Mr. Bousie, of Stoke Park, consisting of three dark and three light varieties, viz., *Vanguard*, *Othello*, *Alpha*, *Vallecheur*, *Queen of Hanover*, and *Miss Hawtreay*. The plants were admirably grown and formed in a *pyramidal shape*, from six to ten feet high, in profuse bloom. We thought they were not as distinct from each other as they ought to have been; in this particular, attention should be given to have as striking a contrast as can consistently be.

Twelve Pelargoniums (Nurserymen).—First prize, £12, to Mr. Turner, for *Carlos*, *Governor-General*, *Una*, *Achilles*, *Exactum*, *Mochanna*, *Rosamond*, *Esther*, *Majestic*, *Astræa*, *Sanspareil*, and *Zeno*. Second prize, £8, to Mr. Dobson, for *Ambassador*, *Purpureum*, *Empress*, *Exhibitor*, *Delicatum*, *Magnet*, *Gulielma*, *Prince Arthur*, *Rosamond*, *Painter Improved*, *Euchantress*, and *Vulcan*. Also four other prizes.

Six Pelargoniums (Amateurs).—First prize, £6, for *Purple Perfection*, *Euchantress*, *Rosa*, *Queen of May*, *Pandora*, and *Lucy*. Second prize, £4, *Wonderful*, *Magnet*, *Carlos*, *Portio*, *Serena*, and *Sanspareil*. Also four other prizes.

Twelve Fancy Pelargoniums.—First prize, £12, to Mr. Turner, for *Perfection*, *Madame Sontag*, *Caliban*, *Erubescens*, *Delicatum*, *Formosissimum*, *Gaiety*, *Celestial*, *Jenny Lind*, *Cassandra*, *Electra*, and *Richard Cobden*. Second prize, £8, to Mr. Gaines, for *Galatzin*, *Miss Sheppard*, *Princess Alice Maud*, *Vandyke*, *Eclipse*, *Hero of Surrey*, *Delicatum*, *Formosissimum*, *John Bull*, *Caliban*, *Queen Victoria*, *Erubescens*.

Six Fancy Pelargoniums (Amateurs).—First prize, £6, for *Delicatum*, *Jenny Lind*, *Advancer*, *Princess Marie Galitzin*, *Madame Sontag*, and *Hero of Surrey*.

Twelve Pansies in Pots (Nurserymen).—First prize, £3, for *Uncle Tom*, *Isabella*, *Duke of Perth*, *Emperor*, *Crimson Perfection*, *Satisfaction*, *Queen of the Isles*, *Brilliant*, *Duke of Newcastle*, *John Ingram*, and *Royal Visit*.

THE ROYAL NATIONAL TULIP EXHIBITION for 1855 was held at Cambridge, on May 30th. The collection shown consisted of 14 stands of six blooms, 10 of twelve blooms, 6 of eighteen blooms, and about two hundred and fifty single specimens—making about 500 in the whole, which is much less than on any previous year's exhibition; this was owing to the very ungenial season. The following are the awards.

Six Blooms, one in each Class.—1st. Mr. Charles Turner, Slough, with *Madame Vestris*, *Duke of Devonshire*, *Alexander Magnus*, *Rutley's Queen*, *Triomphe Royale*, and *Glory of Abingdon*. 2nd. Mr. Charles Spencer, Thurlston, by Derby, with *Royal*

Sovereign, Victoria Regina, Heroine, Pilot, Salvator Rosa, and Triomphe Royale. 3rd. Mr. R. I. Lawrence, Hampton, with Everard, Queen Charlotte, Kate Conner, Byzantium, Triomphe Royale, and Vivid. 4th. Mr. H. Betteridge, Milton Hill, Abingdon, with Bion, Royal Sovereign, Friend, Triomphe Royale, David, and Everard. 5th. Mr. Thomas Adams, Derby, with Captain White, Aglaia, Gem, Duke of Devonshire, Salvator Rosa, and Heroine. 6th. Mr. Joseph Hunt, High Wycombe, with Lady Denman, Camuse de Croix, Sir Joseph Paxton, Princess Royal, Bion, and Vivid.

Twelve Blooms.—1st. Mr. Betteridge, with seedling (feathered byblæmen), seedling (flamed byblæmen), Sir E. Codrington, Heroine, Royal Sovereign, Bion, Rembrandt (Wood), Glory of Abingdon, Thalia, Charles Brown, Mountain Sylph, and Triomphe du Monde (or Pass Salvator Rosa). 2nd. Mr. Hunt, with Nora Creina, Gold Cup, Lady Stanley, David, Ulysses, Heroine, Violet, Quarto, Pilot, Brulant (Beteral), Princess Royal, Lustre, and Lady Catherine Gordon. 3rd. Mr. R. Headly, with Chellaston, Penelope (Headly), Sarah (Headly), seedling, Aglaia feathered, Aglaia flamed, Duke of Devonshire, Pilot, Apollo (Headly), Platoff, Adonis (Headly), and Better than Fanny Goepel. 4th. Mr. Lymbery, with Paul Pry, Shakspeare, Platoff, Vivid, Queen Charlotte, Lorenzo, Nepaulese Prince, Rosa Blanca, Triomphe Royale, Comte de Vergennes, Joe Maltby, and La Vandicken. 5th. Dr. Sanders, with Smith's Sir Robert Peel, Sir James Watts, Princess Lamballe, Triomphe Royale, Polyphemus, Caledonia, Walworth, Claudiana, Royal George, Duke of Devonshire, Reine d'Egypte, and Ariel. Other competitors were Mr. Colman, Norwich; Mr. Allestree, Mr. Spencer, Mr. Thornily, and Mr. Barratt.

Eighteen Blooms.—1st. Mr. Charles Turner, with Alexander Magnus, Madame Vestris, Rosa Blanca, Aglaia flamed, Duke of Devonshire, Triomphe Royale, Aglaia feathered, Pilot, Princess Royal, Strong's King, Primo Bien du Noir, Selim, Purple Perfection, Heroine, Delaforce's King, Countess Harrington, Polyphemus, and Arlette. 2nd. Mr. Lawrence, with Polyphemus, Vicar of Radford, Queen Charlotte, seedling (feathered bizarre), Mrs. Lymbery, Aglaia, Pilot, Claudiana, Madame Vestris, Maid of Orleans, Vivid, Violet Imperial, Friend, Armidia, seedling (bizarre), Heroine, Queen of the North, and Sphinx. 3rd. Mr. Lymbery, with Platoff, Sir Joseph Paxton, Strong's King, Paul Pry, Duke of Devonshire, Captain White, Mrs. Lymbery, Bacchus, Lady Denman, Lysandre Noir, Hephworth's Sarah, Crown Prince of the Netherlands, Comte de Vergennes, Aglaia, Agnes Cresswell, Joe Maltby, Geraldine, and Lavinia.

SINGLE SPECIMENS IN CLASSES.—*Feathered Bizarres:* 1, Royal Sovereign, Mr. C. Spencer; 2, ditto, Mr. T. Houghton; 3, ditto, Mr. Charles Spencer; 4, ditto ditto; 5, Duke of Devonshire, Rev. S. Cresswell; 6, Sphinx, ditto. *Flamed Bizarres:* 1, Royal Sovereign, Mr. C. Turner; 2, Seedling, Mr. R. I. Lawrence; 3, Duke of Devonshire, Mr. C. Turner; 4, Pizarro, ditto; 5, Selim, Mr. R. I. Lawrence; 6, Polyphemus, Mr. C. Spencer. *Feathered Byblæmens:* 1, Queen of the North, Mr. R. I. Lawrence; 2, Queen of the South, Mr. J. Hunt; 3, Friend, Mr. R. I. Lawrence; 4, Seedling, Mr. R. Headly; 5, Helen, Mr. Joseph Hunt; 6, Eliza, Mr. Joseph Hunt; *Flamed Byblæmens:* 1, Don Pedro, Mr. R. I. Lawrence; 2, Princess Royal, Mr. C. Turner; 3, David, Mr. Clarke; 4, Camarine, Mr. Lawrence; 5, Lord Denman, Mr. C. Spencer; 6, Princess Royal, Mr. C. Turner. *Feathered Roses:* 1, Madame Vestris, Mr. Lawrence; 2, Mary Lamb, Rev. S. Cresswell; 3, Heroine, Mr. C. Spencer; 4, ditto, Mr. Houghton; 5, ditto, ditto; 6, Heroine, Mr. C. Turner. *Flamed Roses:* 1, Lady Catherine Gordon, Mr. J. Hunt; 2, Triomphe Royale, Mr. C. Turner; 3, Aglaia, Mr. Lawrence; 4, Triomphe Royale, Mr. J. Hunt; 5, ditto, Mr. C. Turner; 6, Aglaia, Mr. Lawrence.

PREMIER PRIZES, SELECTED FROM THE WHOLE EXHIBITION.—*Feathered Bizarre:* Royal Sovereign, exhibited by Dr. Sanders, of Staines. *Flamed Bizarre:* Selim, exhibited by Mr. C. Turner, Slough. *Feathered Byblæmen:* Gem, exhibited by Mr. Thomas Allestree, Draycott. *Flamed Byblæmen:* David, exhibited by Mr. Betteridge, Abingdon. *Feathered Rose:* Mary Lamb, exhibited by Mr. Thomas Allestree, Draycott. *Flamed Rose:* Lady Catherine Gordon, exhibited by Mr. Joseph Hunt, High Wycombe.

Six Breeders, Dissimilar Blooms.—1st. Mr. Headly, with six seedlings. 2nd. Mr. C. Turner, with Juliet, Salvator Rosa, Princess Royal, Aide-de-Camp, Pilot, and Lady Stanley. 3rd. Mr. Joseph Hunt, with Willson's King, Maid of Orleans, Lady Stanley,

Pilot, Countess of Harrington, and Juliet. 4th. Mr. Betteridge, with two seedlings, Pilot, Salvator Rosa, Juliet, and Sir Joseph Paxton.

BRIEF REMARKS, &c.

HINTS ON THE EARLY FLOWERING OF SEEDLING PLANTS REQUESTED.—I observed an article in a late number of your most useful and valuable CABINET, entitled "Remarks on Hybridizing Plants, by an Amateur Florist," where he states that he directed his attention to the process *last season* with the "*Amaryllis, Achimenes, Verbena, Fuchsia, Phlox, Pelargonium*, and others;" and that now, *this season*, he has, "as the result, very numerous, and in almost endless variety, beautifully distinct flowers of the above, with the exception of the *Amaryllis*." It is, in my opinion, of great consequence to all, and much more so to those who hybridize plants extensively, to obtain the result of their labours as soon as possible, and ascertain what value and properties the numerous seedling plants may possess, as we may be, and in all probability are, crowding our houses with hundreds of the same kind, and more likely thousands of plants that are worse than those we have procured the seed from, and therefore not worth keeping; for I consider no seedling variety worth house room and trouble that does not possess properties, either in form or colour, to mark it as a distinct and acceptable variety from any other yet produced; for, during the last few years, we have seen the market inundated with all sorts of new flowers, many of them having no other recommendation than that they are new hybridized varieties, no attention being paid to whether they are better or worse than their parents. And as I have found from experience how difficult it now is, after the many beautiful hybridized varieties of all florists' flowers that have been sent out, to obtain a new plant that can recommend itself either for its novelty in fine form or beauty of colour, or both combined, the great object of every one who raises seedlings must be to have them to produce their flowers as soon as possible. Yet, notwithstanding all my care with seedling *Fuchsias, Pelargoniums*, and some others, I cannot induce them to flower until the second season, or about eighteen months after sowing, and sometimes longer. Under these circumstances, I should feel much obliged if your correspondent would favour me with a few hints to make my seedling *Fuchsias* and *Pelargoniums* flower early, as he has succeeded in flowering his of last summer's sowing. This year I am following out a plan with some seedling *Pelargoniums* which were sown last season, about the end of July, viz., having given them a cool greenhouse all winter, I have them now planted out *in pots* in the open border, where they are growing most luxuriantly, but as yet without showing any flower-buds. As the season advances, and before the cold weather sets in, I shall remove them to the greenhouse, where I expect them to flower before winter. I have also many seedling *Fuchsias* of last season's sowing, but none of them have any indication as yet, nor do I expect them, to flower this season. Thus the greenhouse must be occupied with seedling plants, which may turn out to be such as I would never think to occupy a border in the garden with in summer, far less crowding greenhouses with in winter, to the detriment of other and finer plants. So a few hints from "An Amateur Florist" will oblige, also, *An Amateur, Lincolnshire*.

FLORAL OPERATIONS FOR AUGUST.

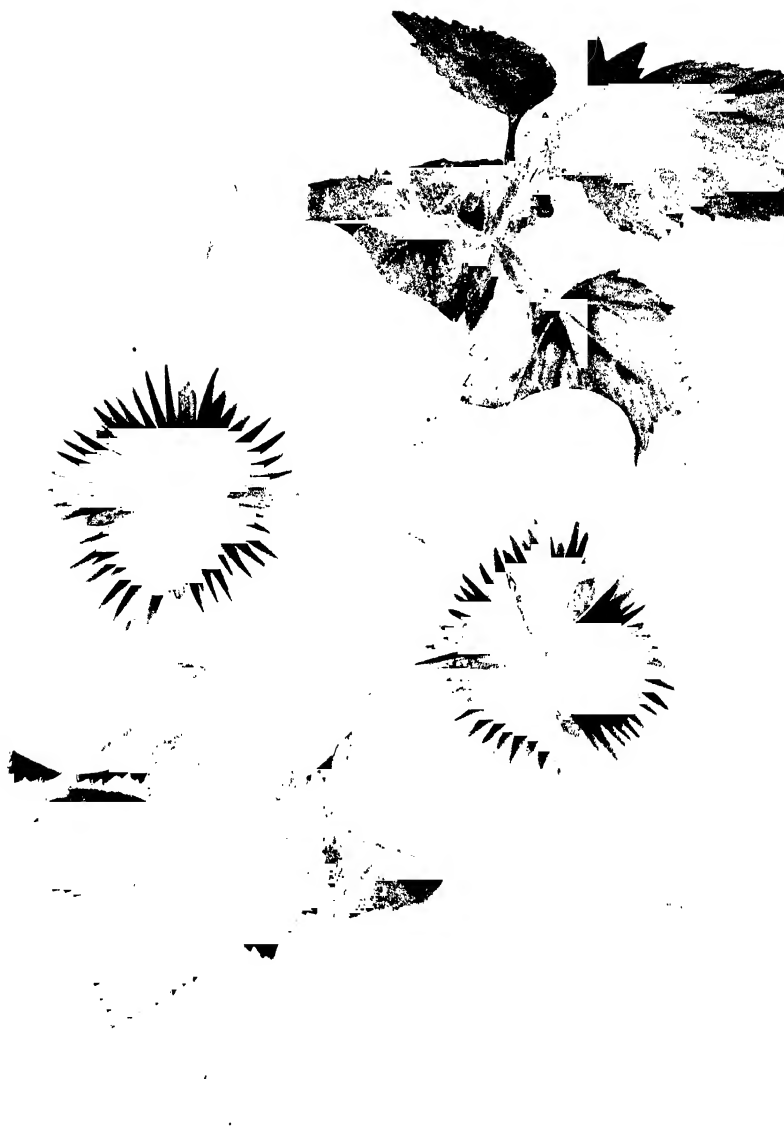
FLOWER GARDEN.—If the weather continue hot and dry, it will be highly necessary to administer copious supplies of water. This should be done towards the *evening* of each day, because the plants have then time to absorb the water gradually, and appropriate such portion as contribute to their well-being. It is only in extreme cases that water should be given in the morning, because it is then so quickly exhaled from the soil, as well as the leaves, that its refreshing and nutrimental properties are almost wholly wasted. A sprinkling overhead very early in the morning will always benefit the plants, by assisting them to sustain the hot and dry winds. Rain-water is best, or that from an exposed pond or tank. Where beds of plants have been repeatedly watered through a rose, the surface of the soil will probably have become *crusted*, and

almost *impervious* to moisture; consequently, they ought to be stirred over occasionally with a small fork. A few annuals, as *Mignonette*, etc., may now be sown to bloom in the autumn, also biennials to bloom next year.

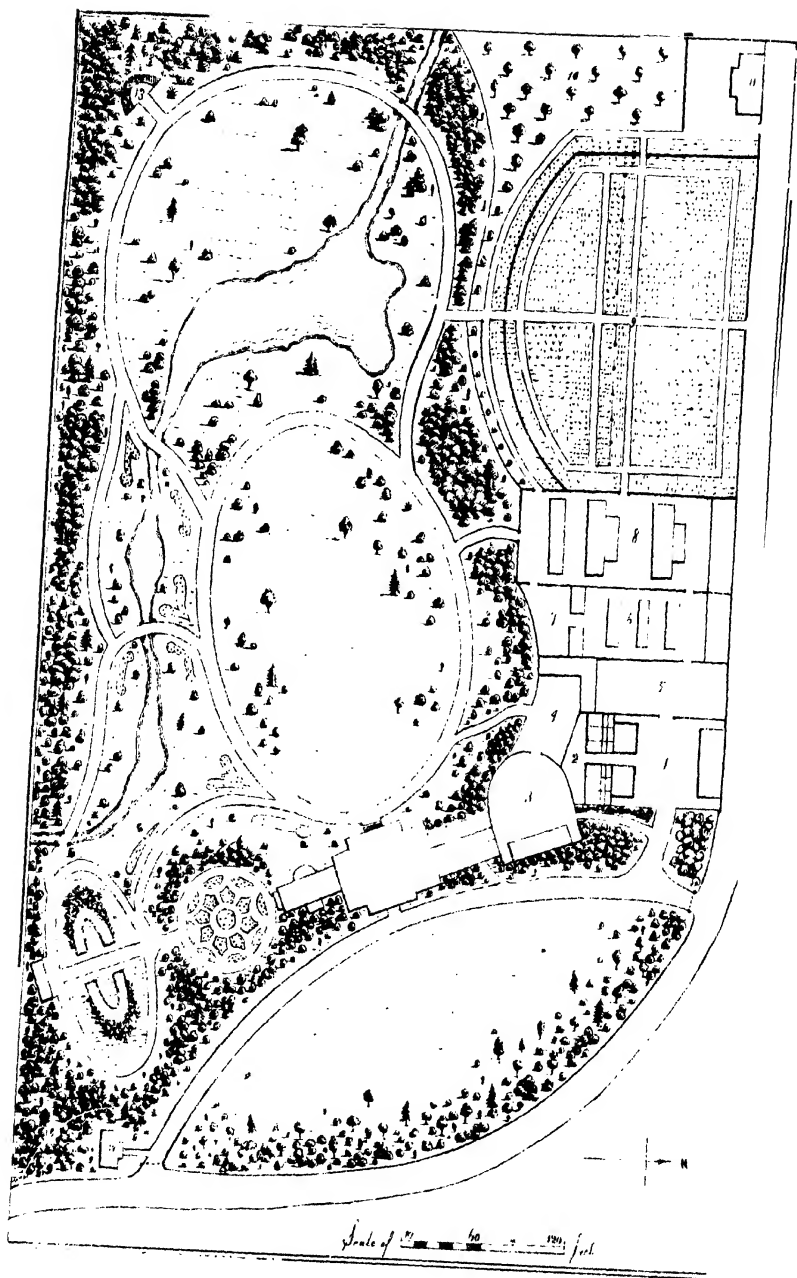
FLORISTS' FLOWERS.—*Auriculas* and *Polyanthus* should be kept in the shade. At this season of the year the plants are often attacked with green-fly; dip the plants in a solution of tobacco-water or size-water. *Tulips* will have perfected their growth, and should now be taken up. *Ranunculuses* will require to be taken up as soon as their foliage has become withered and dry. *Pinks* may still be piped. *Carnations* and *Picotees*: as the pods are fully formed and ready to open, secure them round with a ring of India rubber, gutta percha, or bass, to prevent their bursting on one side. When blown they should be shaded. Never suffer the plants to flag for want of water. Proceed with layering. *Dahlias* will require *thinning out* freely as they advance in growth. If sprinkled overhead with soft water late in the evening, with a fine rose or syringe, their luxuriance will be greatly promoted. *Peargoniums* that have shed their flowers should be cut down, disrooted, and potted in smaller pots, keeping the plants for a week in a close frame, to assist them in developing their new shoots, and cuttings may be put in, one in each sixty-sized pot, or prick them in a border, and pot as soon as rooted. *Roses* may now be budded; moist weather being best for the operation. It is of importance that there should be a resemblance between the bud and the stock, as to the vigour of vegetative growth, in order to ensure a successful result. If a Rose of slow development is budded on a rampant brier, and all the strength of the latter is turned into the parasitical straggler, health cannot be maintained, nor will a freely vegetating Rose submit to be impeded in its progress by a sluggish stock. Thin away surplus branches from all stocks not budded as early as possible, and get the branches strong and healthy.

FORCING STOVE.—Where stove and greenhouse plants afford suitable cutting, propagation must now be pursued; as, generally speaking, it can be practised with the greatest success in the early rather than in the latter part of the year. It should be remembered that the propagation of most plants is facilitated by the employment of bottom-heat and bell-glasses. Stove plants will derive great advantage from a partial shading during the glare of the day, and will be less liable to injury from drought. Many plants will require shifting, such as *Justicias*, *Clerodendrons*, etc. Give plenty of water at the roots, syringe often in the evening, and keep the floors of the house and every part damp, to assist in maintaining a humid atmosphere. Bulbs of *Amaryllis*, etc., should be put together in a pit or frame, where they will be near the glass, and where the influence of the sun, with a gradual diminution of water, will mature them. Never permitting the foliage to flag is a good criterion as to the quantity of moisture plants require; keep as near that state as possible.

GREENHOUSE, ETC.—As a free ingress of air must necessarily be permitted during fine weather, its rapid circulation, conjoined with active solar heat, must cause a rapid evaporation both from the plants and soil; hence there exists a necessity of watering and syringing frequently. Encourage the growth of *Azaleas* and *Camellias* by keeping them comparatively close (with shade during sunshine), and supplying them liberally with moisture administered by the syringe. Propagate *Roses* by cuttings from those plants which have been forced, and place the plants in a rather shady situation, in order that they may have a period of rest for a few weeks. *Culceolarias* that have ceased blooming should be repotted; cut off dead tops, place the plants in a situation where they can be shaded from hot sun, admitting it morning and evening, and seed should be sown, so as to have the plants strong, to endure winter; such will bloom next season, and be much more vigorous than plants raised from cuttings. *Cinerarias* also that have done blooming should have the tops cut off, and be fumigated in a close frame, as they are often affected with green-fly; after which the plants should be turned out of the pots, and planted in a somewhat shady bed of good soil; in the garden, also sow seed now; the young plants will bloom early next spring. *Epacrises*, *Ericas*, etc., now done blooming, may be cut in, to render them bushy. *Chrysanthemums* should now have the leads stopped, to cause the production of side shoots, and make the plants bushy and dwarf. Greenhouse plants placed in the open air in pots should have occasional waterings at the under side of the foliage, to destroy or keep down red spider and green-fly, with weak size or glue water, and often with pure soft water.



LAVATERA MARITIMA.



Scale of 1" = 100 feet

The Floricultural Cabinet.

SEPTEMBER, 1855.

ILLUSTRATION.

LAVATERA MARITIMA.—TOURNEFORT.

A CELEBRATED physician, and professor of botany in the King's Garden at Paris, from 1686 to 1708, formed this genus, and named it in honour of his friends the two LAVATERS, famous physicians and naturalists of Zurich. Previously the species had belonged to the genus MALVA, the *Mallow*, which is one of the orders of the *natural system* of botanical arrangement, viz., MALVACEÆ. This name *Malva* is by some said to be derived from the Greek *malache*, soft, which comes from *malacho*, to soften; in allusion to the softening and laxative properties of the plant. We read in the Holy Scriptures (Job, chapter xxx., verse 4) "Who cut up mallows by the bushes, and juniper roots for their meat;" from which we learn that the mallow afforded food in early times to those wandering tribes that pitched their tents in the wilderness.

It is supposed by others that the name is derived from the Hebrew, in which language it is called *Malluach*, from its saltiness, *malach* being the Hebrew word for salt; and GERARD says, "I am persuaded that the Latin word *Malva* comes from the Chaldee name *Malluach*, the *ch* being left out for the good sound's sake."

The Greeks and Romans ate the Mallow both boiled and raw in salads, so do the Chinese; and we are informed that a *tree* of the Mallow furnishes an abundant supply of food to the Egyptians. The *Mallow*, in *floral language*, is made the emblem of a sweet or mild disposition, hence it formed one of the funeral flowers of the ancients, and it became customary to plant it, along with the *asphodel*, around the graves and tombs of departed friends.

The natural order *Malvaceæ* contains many genera of very ornamental and beautiful flowering plants, as the *Hibiscus*, *Abutilon*, *Malva*, *Pavonia*, *Malope*, *Althæa*, *Hollyhock*, *Lavatera*, etc.

The very handsome and highly ornamental *Lavatera* we now figure is a native of the south of Europe. It is an evergreen

shrubby plant, and where permitted forms fine bushes from three to five feet high, and as much across, blooming in great profusion. It will flourish constantly out doors in the warmer parts of Great Britain and Ireland. It will also flourish in the coldest parts during spring and summer, then be taken up and protected in a cool pit frame or greenhouse during winter. It flourishes when grown either in the open bed or border, as well as when trained to a wall or trellis. Small plants in pots bloom very freely, and are very showy in the greenhouse. It blooms from the beginning of May to the end of summer, when properly treated, and it merits a place wherever it can be grown. It requires a dry substratum and a good rich light loam.

REMARKS ON THE DAHLIA.

BY T. RUTGER, ESQ.

It would appear that plants like animals have only their day, and that even races as well as individuals, in the course of time, pass off from the stage of existence. Some of your readers and correspondents may recollect when the Dahlia was introduced into this country—according to Loudon, as early as the year 1789—there was a species which found its way from Mexico, under the name of *D. superflua*, and five other species are enumerated, in his “*Hortus Britannicus*,” as being introduced in 1802; but it would appear that they were not much sought after for some years, as I remember that a friend of mine, in the year 1815, purchased a plant of what was then called the *D. fulgens*, for which he gave a guinea, and as it was then thought tender as well as scarce, it was planted in the conservatory, where it attained the height of eight feet, with flowers scarce and diminutive, plainly showing that the plant was not in its *proper element*. The following year it was planted out of doors at the latter end of May, where it did well, and flowered to perfection; but it will be remembered that the flower was single, as were also the flowers on its congeners, namely, the *aurantia*, *lutea*, etc. The colour of the flowers of the species above alluded to was approaching to orange, the *fulgens* carrying the palm.

Now the above species will, I think, be allowed to be a different race altogether from the Dahlia now grown, as in their habits they were exceedingly dissimilar; whether or not it ever received a different name, implying a different *genus*, I do not know, nor have I for many years seen any of the race growing, which makes me almost conclude that it is extinct, at least in this country. If it be otherwise, I should be glad, through the medium of the CABINET, to be corrected, with any observations connected with the subject which may be interesting.

About the above time alluded to (1815) my friend procured a

plant of the present existing race of Dahlias ; it was a *double purple*, but by no means an elegant flower. The colour was dingy, and the petals not well formed, the plant was also coarse in its habits ; however, seeds were preserved from it, and sown the following year on a slow hotbed. Many of the seedlings were left in a group, and among them one produced a *double*, and beautifully formed purple flower, the petals were nicely cupped, and altogether it was considered a *first-rate* article. The foliage also recommended itself as being unique and handsome. The following year I sent a plant of it to the Hammersmith Nursery, under the name of *D. purpurea superba*, and from thence it of course got extensively distributed ; however, soon after many other double varieties were raised, and the one above alluded to was, I suppose, soon lost sight of among the numerous competitors which quickly made their appearance.

Many handsome varieties since the above date have been raised and admired, but supplanted by others excelling in their approaches to a perfect flower ; but how frequently soever individuals may pass away to make room for others, I should hope the race will be preserved, as for an autumnal flower it stands *unrivalled* in the opinion of many.

GERMINATION OF SEEDS.

BY A PROFESSOR OF BOTANY, IN NORTH BRITAIN.

THE subject of the present essay concerns a new method of furthering the germination of seeds, in which I have made some experiments, which I think may be beneficial if better known ; and for the proper understanding of which it will be necessary to preface the subject by a short explanation of the theory of the reproduction of plants. In flowerless plants (the class Cryptogamia of botanists) reproduction takes place by means of homogeneous masses of cellular substances, called sporules or spores : in ferns, on the back of the leaf ; in mosses, in small capsules or urns : and in lichens and fungi, from tubes buried in the substance of the plants. Unlike the germ of flowering plants, they contain no cotyledon, radicle, or plumule ; and instead of growing uniformly from two constant points of their surface, they are mere masses of cellular substance, and send forth their roots from whatever place happens to have been covered, and the stem from that portion exposed to light. In the more simple forms of fungi and lichens the subject is involved in such mystery, that many have thence contended for equivocal generation, or a common matter of vegetation, which issues into various forms, according to accidental circumstances. It is, however, more consonant to observation, and to the method and wisdom displayed by the Creator in those parts of his works more tangible to our senses (especially when we take into consideration the millions of millions of sporules contained in a single fungus, as the common puff-ball, or the many hundreds in the common blue fungus

of the cheese), to suppose that they are reproduced by myriads of microscopic pores floating in the atmosphere, dispersed by currents of air, and only called into existence when the accidental circumstances of moisture, putrefaction, etc., necessary to their development are present.

In flowering plants reproduction takes place by means of the germ or embryo contained in seeds, and in the tubers and bulbs of the root. In the seed, the germ develops into radicle or root, and plumule and stem, between which is an axis connecting the two, and communicating with the cotyledons or seed-lobes, which contain the food destined to nourish the young plant till able to extract nourishment from the ground for itself. A deposition of this food is likewise laid up in the cells of the bulb or tuber, and to it the general name of albumen, from its fancied resemblance in functions to the white of an egg, has been given. It is generally enclosed in a hard or bony case, for protection from injury (but which is not necessary to the growth of the germ), and consists of mucilage or gum, sugar, and fecula or starch, which are all convertible substances, consisting of different proportions of carbon, hydrogen, and oxygen, which, by chemical analysis, have been found to stand as under, viz.—

	Carbon.	Oxygen.	Hydrogen.
Gum to consist of	42.23	50.84	6.93
Sugar	42.27	50.63	6.90
Starch	42.55	49.68	6.77

By the continued deposition of carbon, very ripe seeds and tubers contain more starch or flour than unripe seeds; and from the difficulty of reducing starch again into mucilage, which must take place in the vegetating process, before it can be rendered a soluble food for the young embryo, ripe seeds will be found to keep longest, and to survive accidents of bad treatment better than unripe seeds; which, however, from having their food in a state more easily rendered soluble, are found both in seeds and tubers to spring more quickly, and if sufficiently far advanced, with more vigour, than ripe seeds or tubers. In the process of germination, when carried on in the usual manner, if a seed is picked up, the cotyledons will be found filled with a soft mucilaginous substance, generally of a milky colour and sweetish taste. This is the food of the young embryo reduced into a soluble state, and is conveyed through the vessels of the cotyledon to the axis, and thence to the radicle and stem. On the quantity of this food furnished depends the vigour with which the young plant will shoot; and hence the best means of reducing the albumen of the seed or tuber into a soluble food in the speediest manner, and in the greatest quantity, is the greatest desideratum to arrive at in prosecuting our inquiries after the best method of furthering the process of germination. The starch and sugar must be reduced to mucilage; and from an inspection of the table, it will be found necessary that carbon must be abstracted, and oxygen and hydrogen added; and accord-

ingly it is found that in germination carbonic acid gas is given off, the air is deprived of part of its oxygen, and water, yielding hydrogen and oxygen, is absorbed. Air, heat, and moisture are all necessary, and likewise the exclusion of light. The air yields the oxygen necessary in abstracting the carbon, in the state of carbonic acid, from starch, and converting it into sugar and mucilage, which may be familiarly illustrated in the sweetness of malting grain and germinating potatoes. A heat of 160 degrees is required to reduce starch to solubility; and it is not generally known how such heat is usually acquired. The disengagement of the oxygen sets caloric free, and hence seeds moistened and thrown into a heap to germinate are found to generate a great heat. Alkalies are also found useful in furthering the process, and are generated whilst it is going on. Perhaps, also, the starch is more soluble in its state of combination than when extracted; and, to all perceptible causes, we must add that vital energy so everywhere necessary, and so little known.

In soils which have been properly prepared, by being broken into very small particles, confined air is generated, which so increases the heat as to be perceptible even to the touch; and hence the benefits of well-pulverized ground, and of covering with pieces of glass, and flower-saucers, etc., to increase the heat and retain the moisture, and thus further greatly the vegetation of the seeds; and hence the different quantities of heat and moisture requisite for seeds, according as they are dry and farinaceous, or oily and mucilaginous. Very dry farinaceous seeds, as the *Acacia*, and others of that tribe, are benefited by immersion in boiling water; and hence the reason why either heat or moisture of itself is not sufficient, and even hurtful if carried to excess, either in the germination of seeds or the bud or embryo of the tuber of the potato, as lately illustrated in the three last consecutive springs, in which, from the drought and heat acting on the substance of the newly cut tuber, without the advantage of moisture, the albumen has not been reduced into a soluble food, or in such small quantities as not to be sufficient to produce the development of the bud or shoot.

I now come to that part of the subject where, from the explanation already given, I hope it will be in my power to explain the reasons why I was induced to try the experiments I set out with taking notice of, and which I hope will be found, on proper trial, to be very beneficial. It is to seeds damaged by being too long kept in a dry state, or hurt by too much fire heat, or heat of the sun, that my attention has been principally directed. It has been often recommended to apply substances readily yielding oxygen; and I have myself tried oxalic acid frequently, but without any perceptible effect; and from experiments lately instituted, it appears that more than the quantity of oxygen, or about one-third contained in common air, is not beneficial, though this proportion is absolutely necessary.

Experiments lately made by Mr. Charles Maltuen, and narrated in *Brewster's Journal of Science*, showed that the negative or

alkaline pole of a battery caused seeds to vegetate in much less time than the positive, and he was thence induced to experiment on seeds in glasses filled with acetic, nitric, and sulphuric acids, and also in water rendered alkaline by potash and ammonia. In the alkaline the seeds vegetated in thirty hours, and were well developed in forty; while in the nitric and sulphuric, they took seven days; and even after a month they had not begun to grow in the acetic acid. The great benefit of the alkalies in hastening the germinating process being thus so apparent, I was induced to experiment on lime; a very easily procured alkali, and which I reckoned to be more efficient than any other, from the well-known affinity of quick, or newly slacked lime for carbonic acid. Lime, as taken from the quarry, consists of carbonate of lime, or lime united to carbonic acid, and, in the act of burning, the carbonic acid is driven off; and hence the great affinity of newly slacked lime for carbonic acid. I depended therefore on this affinity to extract the carbon from the starch, assisted by moisture in aid of the heat disengaged in this process, and also in the above well-attested effects of alkaline substances in hastening the process of vegetation; and in the spring of 1835, having a quantity of old spruce fir seed, I was determined to try the experiment.

It is well known by nurserymen that the seed of the spruce fir will scarcely vegetate the third year, although kept in the cones; but, in the present instance, the seed had been out of the cones during all that time; and the year before, or second year of the seed, had been so weak, that although well damped, and sown a great deal thicker than usual, in a favourable state of the weather, and in ground in good condition, still it came through very thin, yellow in the colour, so weak as scarcely to be able to free its cotyledons from the ground, and not producing one-third of a crop. Thus, under ordinary circumstances, after keeping the same seed a year longer, we had little reason to think it worth sowing. I, however, caused the seed to be well damped a few days before sowing, and then added slacked lime, the influence of which was not long in being manifest. The year before, when the two years old seed had been damped, it swelled none, but acquired a mouldy smell; on the contrary, the third year, after the quick-lime had been added, it swelled off plump and full, and had all the sweet smell of fresh germinating seed. It was sown very thick, but the plants started fresh and vigorous through the covering of soil, of a dark green colour, and in such quantity as to produce a crop much thicker than usual; and the plants grew and throve as well as in the first year of the seed. I tried the same experiment this year, but, from the unprecedented long-continued dry weather, it had not a fair trial; although, however, four years old, the crop is still about the same thickness as some fresh Scotch pine seed sown on the same day beside it, and the plants equally strong. I tried it on some magnolia seed, the seedlings of which have this year grown with more than their accustomed vigour. As the whole of the plants may be seen, for very little trouble, in our nursery grounds (at Kil-

marnock), and as the good effects, I think, have been made apparent, I hope it will not be considered trespassing too far on your time to give a detail of the method I would like pursued. Let it be understood that the nature of the experiment applies only to seeds in which the albumen has become hard and dry, from long keeping, kiln-drying, exposure to a hot sun in crossing the equator, etc., and not to such as have been wasted, and the albumen destroyed or damaged by moisture, heating in a green state, etc., or when it is wanted to hasten the ordinary process of vegetation in seeds that are tardy. Let the seed to be experimented on be spread on a floor, or in a box or saucer, according to quantity, and thoroughly damped (more or less according to the nature of the seed, as to its naturally dry or oily condition); let the whole be well mixed together so as every seed may receive its proportion of moisture, from one-eighth to one-tenth of the bulk; and mix the seed again well, so that each may receive its proportion of lime; lay it up in a heap, and when it begins to get dry, have it turned and mixed, and again damped; and continue this process for a longer or shorter time, according to the known habits of the seed as to speediness in vegetation, observing not to let it lie long in a dry state, in which the lime is rather prejudicial; and I feel confident, if these instructions are attended to, the result will be beneficial. Before quitting the subject, I would like to call attention to the immense use of alkalies in the vegetable economy. We have seen their use in furthering the germination of seeds; and lately has been narrated in our newspapers the good effects of quicklime sprinkled over the newly cut tubers of the potato: but it is in preparing the food of the plant, or in rendering manure into a soluble food for the plant, that their greatest benefits are to be found. The different constituents of plants (starch, sugar, mucilage, and lignine, or fibrine) are all composed of various proportions of carbon, hydrogen, and oxygen. The water absorbed by the root yields hydrogen and oxygen; and carbon being the only substance thus wanted, it has been tried to afford it, by exhibiting to the spongioles of the root carbonic acid gas in its pure state: but its quantity has always been undiminished, until mixed up with alkalies in a saponaceous matter, in somewhat of the proportions found to exist in manures of the kinds most beneficial to plants.—*Kilmarnock Journal*.

CULTURE OF LILIUMS.

BY A NORTH-COUNTRY FRIEND.

LILIUM is a genus comprised of bulbous-rooted perennial plants; it belongs to the sixth class *Hexandria*, and the first order *Monogynia*; it also ranks in the natural order of *Liliaceæ*, and is divided into the following sections:—

Section 1st contains—*Lilium candidum*, Common White Lily;

L. Catesbæi, Catesby's Lily; *L. bulbiferum*, Bulb-bearing or Orange Lily.

Section 2nd contains—*Lilium Japonicum*, Japan Lily; *L. pomponium*, Pomponian Lily; *L. chalcedonicum*, Scarlet Martagon Lily; *L. superbum*, Superb Martagon Lily; *L. tigrinum*, Tiger Lily.

Section 3rd contains—*Lilium Camschatense*, Kamtschatka Lily; *L. Philadelphium*, Philadelphian Lily.

Section 4th contains—*Lilium Martagon*, Purple Martagon Lily; *L. Canadense*, Canadian Martagon Lily.

All the species and their varieties are capable of being increased by planting offsets of the root, and by seed, to obtain new varieties. Their roots afford plenty of offsets every year, and may be taken off *annually*, but *once in two or three years* is better, unless they are more immediately wanted. The proper time for this operation is *autumn*, when the flowering is over, and the stalks decayed, either by separating the offsets from the mother bulb, which remains undisturbed, or by taking the whole of the bulbs up and separating all the offsets, small and great, from them; the small offsets being *then* planted in beds a foot asunder and three inches deep, to remain a year or two, and the large bulbs planted in the borders again singly; the offsets in the nursery beds, too, having obtained size and strength for flowering in perfection, may be planted out where they are wanted to bloom.

Sowing of the seed is chiefly practised with the Martagons, in order to obtain new *varieties*; it must be done in autumn, soon after the seed is ripe, in pots or boxes of light rich sandy soil, placing the pots in a sunny sheltered situation all winter, refreshing them at first often with water. The plants will appear in the following spring, about April; then remove them to where they will receive *only the morning sun* during the summer, giving moderate waterings in August. The bulbs should be transplanted into nursery beds in flat drills, an inch deep, and three or four inches asunder, when, as the bulbs will be very small, scatter the earth and bulbs together into the drills, covering them with earth to the above depth, and after having grown in this situation till the August or September following, they should be transplanted into another bed, placing them eight or nine inches each way asunder, to remain to show their first flowers, after which they may be finally planted out into the pleasure-ground borders, beds, or flower gardens. Seedlings of the other sorts may be raised the same way; and in order to obtain *new varieties*, impregnation of the different kinds must be duly attended to when their blossoms are in due perfection. The *bulb-bearing* kinds may also be increased by the little bulbs which are produced at the *axils of the leaves*, without taking up the bulbs; this is the case with the *Tiger Lily*, etc. The same method of planting and general culture answers for all the different sorts.

The most proper time, as has been already noticed, for planting

and transplanting the blooming bulbs is in autumn, when their flowers and stalks have decayed, which is generally about September, the bulbs having then been at rest for a short space of time. If required, however, the bulbs may be kept out of ground till October or November; the *White Lilies*, however, *do not succeed well* if kept long out of the earth, and all the others are better when planted again as soon as possible. They must always be planted *singly*, as they soon increase by offsets into large bunches, disposing them in an assemblage in different parts of the borders, and towards the fronts of the principal shrubby clumps; placing them about four inches deep, and at suitable distances from one another, judiciously intermixing the different sorts, planting some forward and others more backward, to effect the greater show and variety. Some may likewise be planted in different beds by themselves, twelve or fifteen inches asunder, either of several sorts together, or each kind in distinct beds, or be arranged in separate rows of a sort.

After being planted out, few of the sorts require any particular culture, as they are capable of bearing all weathers at every season. It is necessary, as some of them run up with pretty tall slender stalks, to support them with sticks, so as to preserve effectually their upright position, by which their flowers will appear to the best advantage. Some of the more tender sorts, as *L. Catesbæi*, *L. Japonicum*, *L. Canadense*, and *L. Philadelphium*, should, however, be protected in severe winters, by applying tanner's bark, or some other similar substance, over their roots.

All the kinds, as has been said, should remain *undisturbed* two or three years, or longer, as they flower stronger after the first year, and having increased by offsets into large bunches, many stalks will rise from each bunch, so as to exhibit a larger cluster of flowers; it is, however, proper to take up the bulbs every four years at least, both for propagation and to disburthen the main bulbs, and give them room to take their proper growth in.

They are all valuable as plants of ornament, from the beauty of their flowers, as well as having a noble appearance. They are, of course, proper ornaments for the pleasure ground, and when the different sorts are properly intermixed, they effect a most elegant variety, succeeding each other in bloom for several months. When wanted particularly for *shady* or *close* places, the common *White Lily*, *Orange Lily*, and the common *Martagons*, are the most proper, as they thrive under trees. The *Orange Lily* also answers well in small gardens, in the midst of buildings in towns and cities. Besides planting the different sorts for the beauty of their flowers, many of the *stripe-leaved White Lily* should be placed towards the fronts of the most conspicuous parts of the bed or border, for the beauty of their leaves in autumn, winter, and spring, which, disposed alternately with the common *White Lily*, whose leaves are *entirely green*, produce a most striking effect.

The above *Lilies* flourish in a mixture of good rich loam and

sandy peat, and must always have a dry substratum; it is also advisable at each replanting to have them in a new situation, or renewed soil. In dry seasons particular attention must be paid to watering the soil; for if the foliage once shrivel from drought, it soon perishes, and the plants become unsightly. I have found that a good layer of moss laid over the bulbs is very beneficial, keeping the bulbs cool and moist.

TREATMENT OF CAMELLIAS.

BY THE FOREMAN OF A LONDON NURSERY.

A CORRESPONDENT having recently requested information on this subject, has induced me to forward you an account of the best mode of growing this very splendid tribe of plants.

Soil.—I never have the soil sifted, but broken well with the spade, this admits the water to pass through readily; whereas when the soil is finely sifted, it soon closes up, the water becomes stagnant in it, and renders it sour and unhealthy, unless a considerable portion of sand be added, which makes the compost too poor for the healthy growth of the plants. The following proportions of compost I grow them in most vigorously. To a barrowful of turfy loam, two years old from the time of paring from the pasture or common land, I add half a barrowful of well-rotted hotbed dung, half a barrowful of peat and leaf-mould, and a quarter of a barrowful of fine white sand, usually called Calais sand. This is suitable for plants of all ages.

Propagation.—This is readily done either by cuttings, layers, inarching, grafting, budding, or the seeds. The best plan of increasing any of the kinds is by inarching, being the most certain method.

Cuttings.—The single red for stocks to inarch upon is easily struck. Plants of other kinds raised from cuttings do not always grow so vigorously, as when they are inarched, grafted, or budded upon stocks of the single red. This kind producing a much greater proportion of fibrous roots than the other kinds do, consequently a greater quantity of food is received by the plant. The best period for taking off the cuttings is when the new shoots have reached their length of growth, and the wood is just become firm, then I cut them off horizontally, close at the place where they pushed from last; cuttings of this description are generally to be obtained about May, or early in June. Loam and white sand, in equal proportions, are suitable for striking in. The pots are always well drained; after inserting them tightly into the soil, they are placed in a cool frame for a week, and then plunged in a hotbed frame, or bark pit. When they have struck root, which is usually indicated by the pushing of new shoots, they are potted off into small pots, in the compost above named, and placed in a greenhouse or cool frame, where they can be shaded

for a short time. As the plants advance in growth, they are reotted every year.

Budding.—This is done in the usual method of budding other trees. A bud is selected from a young vigorous shoot that has perfected its wood. After budding, the plants are placed in a gentle hotbed frame, turning the buds from the sun. When the stock begins to grow, the top is pinched off, to cause the sap to flow to the bud. When the bud has pushed an inch or two, the top of the stock is cut off about an inch above where it was inserted, cutting the stock in a sloping manner from the bud.

Grafting.—This is done by taking a scion and cutting a short tongue about three inches from the bottom, a similar tongue is made in the stock; after being fixed and tied, and clayed or mossed, where tongued together, in the usual mode of grafting, the bottom portion of the scion is placed in a suspended phial filled with water; this is supplied regularly afterwards, and it affords a considerable support to the scion, and assists its union. The plant is placed in a gentle hotbed frame, or moist plant stove. When the graft has pushed two inches, the head of the stock is cut away similar to those budded.

Inarching.—This is the best and generally adopted method. Just before the plants begin to grow in April or May, this operation is performed. Young stocks about a quarter of an inch in diameter are placed around a plant, and after cutting a *small* portion from the branch and from the stock, in order to place them firmly together, a very short tongue is made in each, and after fitting they are tied tightly together, and a little moss is bound over each part, and afterwards kept moist. When the scion has pushed a little, it is cut about half-way through, and in a fortnight afterwards cut clean away from the parent plant, and soon after the head of the stock is cut away near the place of union.

Increase by Seed.—This is obtained from the single and semi-double flowers, the former for stocks to work upon, and the latter for obtaining new and desirable varieties; or, in case nothing new is raised, still the plants do for stocks. The seeds usually require to remain two years before they vegetate; occasionally they will strike the first season. I place the seed in a cool frame the first year, and a hotbed frame the second. When the young plants are two inches high I pot them off singly into small pots, place them in moist heat for a week or two, and then take them into a greenhouse.

When the plants raised by any of the above methods have grown a foot high, I pinch off the top bud of each of the leading shoots, a leader is afterwards retained to each, and the plant is permitted to grow as high as required; but attention is constantly paid to stopping the lead, as also lateral branches, so as to keep the plants bushy.

Repotting the Plants.—In shifting the plants, I always give a pot two sizes larger, so that there is about an inch clear all round the

ball. The balls are left entire, excepting *patting* them gently with the hand round the sides, so as to loosen the ends of the fibrous roots. An inch deep of drainage is placed at the bottom of each pot; this attention is very essential. I have sometimes raised moss for the purpose, which answers well. *The time of potting is always performed when the plants have ceased blooming.* The plants are then placed in a stove of about sixty-five degrees of heat by night, and seventy by day. When the new shoots have ceased growing, the heat is increased to seventy-five by night, and eighty by day; this causes the shoots to produce a profusion of flower-buds, which will also be plumper than if not thus attended to. The young shoots are not allowed to grow till they become firm, before the heat is increased, but this must be done *immediately* on perceiving that they have ceased to grow longer. I keep them in this situation for about a month, and then gradually inure them to the greenhouse, and finally to the open air, where they are kept till wanted to flower in the autumn or early winter, or housed in October, for blooming at the usual season in spring.

When I place the plants out of doors, they are put upon a bed of coal-ashes or sand, six inches deep; this prevents worms entering into the pots.

The Camellia, like the Orange, likes frequent syringing over the tops. From this a considerable quantity of nutrition is imbibed, by keeping the pores open. In watering the soil, this is never done till it is perceived they are *becoming* dry; then a plentiful supply is given, the water being about the temperature of the situation where the plants are. When the plants are in blossom bud, if they are allowed *once* to flag, the buds are almost certain to drop, particularly those most advanced to a state of blooming. The bud will not generally fall off then, but having received damage at the centre of it, it will be found, on examination, even if it remain on the plant till near expansion, that the centre is decayed. If the plant be kept saturated with water for a short time, this will damage the buds and cause them to drop. This damage is often sustained if there is not a good drainage in the pot, or if the soil be very fine and adhesive. A sudden transition from a low temperature to a very high one, or the contrary, from heat to cold, will also damage the buds, and render them liable to drop.

When a plant becomes too high or straggling, it may be safely cut in; this I always do when it has done blooming. I then place the plant in an increased temperature to cause it to push. When I see the buds pushing, I then repot it into a larger pot. This is a much better plan than repotting at the time of cutting in, for when both operations are performed together, the plant is sometimes so affected as to die, or only partially to push shoots; but by the method I practise I never had the least defect occur to a plant.

The brown scaly insect sometimes attacks the Camellia; this I rub off, and wash the plant with soapsuds and sulphur. When the

green fly attacks the ends of the shoots, I apply a sprinkling of diluted tobacco-water. The red spider seldom attacks the plant, but a forcible washing with the syringe, at the under side of the foliage, destroys this insect.

As the *Camellia* will flourish, whether grown in a stove, conservatory, greenhouse, cool frame, sitting-room, or in the open air, as freely as a common *Laurel*, and all the kinds being splendid flowering plants, I hope my remarks will not only lead to a more extended culture of this magnificent and showy genus, but, if strictly followed, I am confident, to a most successful mode of culture.

PREPARING BEDS FOR THE GROWTH OF FLOWERS.

BY A NOBLEMAN'S FLOWER GARDENER.

IN situations upon lawns, etc., a profuse bloom is a most desirable object, and in order to effect that the best tillage is essential. For all strong-rooted plants, such as *Pelargoniums*, *Fuchsias*, *Salvias*, *Calceolarias*, etc., the bed should be half a yard deep, at least, of good unctuous, but not binding, loamy soil. The fleshy kinds of plants, as *Lobelias*, etc., delight in rotten leaf-soil mixed with loam, and the fine hair-like plants, as *Heaths* and American shrubs, require what is termed heath-soil, with a portion of light fibrous earth. When the beds are first formed, this preparation will do for two or three seasons, with the usual supply of a portion of well-rotted manure to the loamy and leaf-mould beds. What, however, is most essential to the promotion of a fine display of flowers is, that after this period there should be a yearly removal of a portion of the soil from the bed, and an addition of fresh, of the character each bed requires, whether loam, vegetable, or heath-soil. Manure alone may stimulate to vigour, but the fresh soil gives a richness of verdure in foliage, and colours in flowers, that the former cannot produce, besides a much greater profusion of bloom. I have had twenty years' practice as a flower gardener in one of the first-rate establishments in England, and experience has annually confirmed the advantages of such attention in a suitable soil. The best method to pursue is yearly to obtain, in winter, a proper quantity of fresh turfy soil from the meadow, and heath-soil from the moor, etc.; to have it laid up in heaps fully exposed to the weather, where it may receive sun, air, and rain. This being mixed up, as laid at first, with about one quarter of rotten horse-dung, and when for *Rose-beds* cow-dung is an excellent provision, to reinforce the beds with. This attention will most amply repay by the beauty it effects. I am confident if persons will but give it a trial once, they will not regret, but be induced to continue an annual interchange of the soil. I must not omit to state that in all cases there must be a dry substratum; if it is not naturally so, it must be formed of broken stones, pieces of bricks, etc.

PROPAGATING THE TREE PÆONY.

BY MONS. MAUPOIL, OF DOLO, ON THE BRENTA, IN ITALY.
AN EXTRACT BY CLERICUS.

IN the month of April I take off (close to their origin) the young shoots which show for flower, at which time they are about five, six, or eight inches long. After having stripped off most of their leaves, and cut off the flower-bud, I plant them in a northern aspect, and cover them with a frame and a bell-glass. The next day I water them; but as the situation is, of course, moist, the waterings need not be frequently repeated. Great care must be taken to prevent the growth of moss, and therefore it is desirable to give them a little air occasionally from sunrise till seven or eight o'clock in the morning. By the following month of October they are well rooted, and they may then be planted out, or left where they are, if they have sufficient ground-room. By this method I do not lose above one cutting out of twelve. Experience has taught me that the young and vigorous shoots which have no flower-buds do not strike so well; and the reason seems to be that the suppression by the flower-bud causes an increased determination of sap to the base of the cutting.

COMPOST BEST SUITED TO SUCCULENTS.

BY AN AMATEUR GARDENER.

By this title may be understood an immense tribe of plants formerly considered tenants of the dry stove, but now found to be more hardy than the *Geranium*. But it is proposed to restrict this inquiry to the *Cactææ*, as sufficiently comprehensive for the present purpose.

There are many persons now living who may remember the time when our greenhouses or stoves could exhibit few specimens of the *Cactææ*, except the common creeping *Cereus*, the Melon, and Torch Thistles, and the Indian Fig. Now, however, the case is widely different; for such has been the success of collectors, and so great is the facility with which the genera are propagated, and varied by cross impregnation, that it would be vain to attempt a list of species and almost endless varieties.

Having, then, so much choice among a selection of surpassing beauty, it becomes an object of consequence to determine pretty accurately the soil that will generally succeed with all the varieties: but herein, as almost always happens, cultivators are at variance; yet, as I do not pretend to dictate, and ever desire to "let well alone," I shall be content to allude to what I have seen and heard.

Formerly it was the custom to make pretty free use of old mortar scraped from bricks or walls, incorporated with loam; then it was

roundly asserted that good, soft, or *sandy loam*, mixed up with fragments of broken bricks, formed the most healthy bed for the roots. Other writers, and practical gardeners, got rid altogether of lime rubbish, and retained but little loam; they advised, and many now use, the best or richest "peat," as peat-mould is called, with rotten manure, and give water freely, in the growing season, with liquid manure.

Be the soil what it may, certain it is that it should be pressed *firmly around the roots* with the hands, till the ball be solid and compact; and little or no water ought to be given between October and April, during which period *frost of two or three degrees* will little affect the plants; good drainage is also most essential.

But I am sure that the herbage of Cacti (if so it may be called) is greatly affected by the soil. In some collections one observes the tint of almost every plant to be a dull, brownish-green, and the texture flaccid; in others, it is of a full deep verdure, with every appearance of vigorous health. Conversing on this subject with a very successful grower, one who had pre-eminently beautiful specimens of *Epiphyllum truncatum* grafted upon *Pereskia aculeata*, I was told that "loam spoiled all the Cacti, and turned the plants brown." My experience for years tended to confirm this observation; but time has not been given to confirm the truth of another remark, which I thus communicate, that your readers may experimentize for themselves. My friend said, "Take equal quantities of very *old black manure*, and of the strongest lime rubbish from old walls, the older the better; mix them thoroughly, and add about one-sixth of unctuous loam. In this compost your plants will recover colour, *be always green*, and bloom abundantly." At all events, my informant's plants make good his words; and we shall attain the present object if this paper excite the notice of observant and candid horticulturists.

THE BEST SEASON FOR TRANSPLANTING TREES, SHRUBS, ETC.

SUBSCRIBER. Which season do you prefer, spring or autumn, for transplanting trees? You have had some experience in this matter, and as I find my neighbours differ much in their opinions, I am anxious to have your advice.

EDITOR. It is true there are various opinions upon this matter. Many men, indeed a greater portion of those who give such advice, sometimes rather dogmatically, never planted more than a dozen trees, and those not more than once or twice in their lives—when, perhaps, making their garden around their dwelling—and as they, of course, chose the season they thought the best, whether autumn or spring, they advise all to do as they did. Their evidence is *ex parte*; for they never took hold of the thing experimentally—planting fall and spring for a series of successive years; the only way to test such a question.

SUB. So I should think ; but I find, too, people not only differ as regards the general season of planting, but as regards the kinds of trees suited to the season.

ED. Yes. I am aware of that : one cultivator states that he prefers the spring for all kinds of trees ; another, that he prefers the fall ; a third prefers the fall for everything except peaches ; and others would set out everything in the autumn except stone fruit.

SUB. True ; and it is for this very reason that there are so many opinions that I wish to know which season you prefer, and, if not too much trouble, to give the reasons that have guided you in your choice.

ED. Willingly. It is a rule we have always adopted in our horticultural operations, never to do anything unless it can be justified upon some *principle*. This hap-hazard kind of gardening—doing what others have done before us—or following the advice of every writer who gives his year's experience to the public, is what we never practise, unless accounted for on good and sound reasons.

SUB. I have not read your Magazine without learning that long ago, and therefore ask the question in regard to transplanting trees ; for, beyond the mere *ipse dixit* of the many that the fall or the spring is best because *it is*, I have been unable to learn why one season is better than the other, or why both are not good alike.

ED. You will bear in mind that winter often leaves the ground in such a wet and sodden state that transplanting cannot be well done for some days, and frequently a fortnight is as good as lost. While in the autumn the ground is dry, loose, and friable, and the operation of transplanting can be done in half the time—and infinitely better too—than it can in the spring.

SUB. True enough. This condition of the soil in autumn never occurred to me ; its wet state has always kept back my work in spring. Then I understand you to say you would plant both fall and spring.

ED. Yes, both.

SUB. But you do not mean to say you have no preference of one over the other ?

ED. Certainly not. You have not heard me through. My object is to show that if autumn planting is no better than spring, or even not as good, it is necessary that a good deal of it must be done then where large quantities are to be set out. I decidedly prefer the autumn for transplanting all hardy trees of any size.

SUB. Go on.

ED. Autumn planting is better than spring for the following reasons :—

1st. The time is longer than the spring. 2nd. The ground is in better condition. 3rd. The trees are then in the most dormant state. 4th. The roots, where cut, heal better, and are prepared to send out fresh ones even before the frost is out of the ground. 5th. The winter and spring rains settle the earth around the roots.

6th. The trees are well established before warm weather overtakes them.

SUB. These appear satisfactory reasons, and based on sound principles; but I should be glad to hear you state whether you would transplant in the autumn without reference to soil or locality.

ED. Not by any means. There are soils and situations where autumn planting might be injurious; but then these are not likely to occur: for that soil which will not admit of transplanting in the autumn is entirely unfit to grow a tree, at least with expectation of producing fine fruit; and therefore there is little necessity of making any such exception in our rules. We are presuming that the object of every planter of fruit trees is to get good fruit. It cannot be done in a soil or situation *too* wet and cold to set the trees out safely in the autumn. It is somewhat different with forest trees; as it is often an object to plant up some low, cold piece of ground, needed for shade or shelter. *In that case* only, the spring would be the preferable season.

SUB. I appreciate the truth of your remarks, and agree with you that no tree ought to be planted in a soil which cannot carry it safely through the winter. But is there no danger of winter killing the shoots or trunk, even in favourable soils? such is the general complaint of spring planters.

ED. Not the least: that is, no more than if the tree had not been removed. If the tree is in good health when set out, it will receive no more injury than it would have done standing in the nursery row. We have known severe winters to kill some kinds of young pear trees to the ground: if set out previous to such a hard winter, they might be injured; but we do not think their liability to the danger increased by removal.

SUB. That is just what I wish to learn: your experience extends over many years, and through a series of variable winters, which should enable you to judge correctly of their effects upon transplanted trees, and with this experience you are confident there is no more danger of winter killing than if set out the previous spring?

ED. Not any; except, as I before stated, when planted in cold, wet, and unfavourable soils.

SUB. This point settled, which has been the greatest bugbear in the way of autumn transplanting, leaves little doubt of its being far the *best season*. Your fourth, fifth, and sixth propositions appear to decide the question. There can be no doubt of the better ability of the trees to send out roots early in the spring, which will enable them to resist June and July droughts, so trying to all transplanted trees.

ED. Have you ever carefully noted down the changes in the growth of newly planted trees? If not, do so another year. You will find that a tree set out in April will break freely, and start into growth vigorously; but by the time our early rains are over and dry

weather sets in, then they often come to a dead stand—scarcely another shoot will they make all summer. Just at the time the greatest supply of sap is required, the tree is unable to give it, as it has not yet established itself sufficiently to furnish that supply; consequently the growth stops, and in many instances death ensues.

SUB. Without noting particularly the condition of trees which I have transplanted in the early part of the season, I have lost too many not to be aware that, in June or July, they generally have completed about all the growth they make the first year.

ED. Now give the same attention to those you set out in the fall. You will find they will rarely start so early, and generally not so vigorously, as the spring-planted ones. They come along slow, but sure—no faster than the roots are made which have got the start of the shoots—and in July and August will make almost as much wood as an old-established tree. If, again, you look into the subject thoroughly, you will find the roots are at work long before the surface of the soil is loosened from its frosty hold. Just as we see an old tree, after one or two hot days in April or May, break at once into leaf. If, however, the frost was not out, the tree would remain stationary; this shows that there is root action long before we see it indicated by the breaking of the buds.

SUB. Very reasonable and true. It must weaken the energies of any tree making much wood to attempt to supply the food which a week of June or July weather would extract.

ED. Precisely so, and a little observation will convince any one of this.

SUB. Something has been said in favour of the autumn, that trees make roots after they are set out at this season. Is this so?

ED. This question is not one of *doubt*, but of *fact*. Captain Lovett, in an article in our Magazine some years ago, has shown that trees transplanted *early in the autumn* (October) always put out new roots before winter, and tender kinds when protected by a covering of manure or leaves to keep out the frost; the root-making process goes on until mid-winter, and we are inclined to believe *all* winter.

SUB. My observation, though somewhat limited, has, however, convinced me that the reasons you give in favour of *autumn* transplanting are founded on sound principles, and when understood cannot fail to be generally followed.—(*Hovey's Magazine of Horticulture.*)

DESIGN FOR AN ESTATE COMPRISING SIX ACRES.

BY T. BUTGER, ESQ.

THE design comprises about six acres; the approach is by a lodge entrance, which leads on to the stables; at the south-west of the house there is a conservatory attached, a circular flower garden, a

compartment for an aquarium, and a summer house. At the north-east of the house is a court with offices, leading into the laundry yard, etc., all of which will be understood by the reference. The clumps at the angles of the walks are intended for choice dwarf shrubs, and a handsome American border can be arranged along the north side, from the streamlet to the walk which leads into the forcing department. The whole of the ornamental part of this design is intended to receive trees and shrubs of the most select kinds, grouping them on the lawns, or planting them singly, in accordance with good taste and sound judgment, placing the larger kinds at the greatest distance from the house, etc.

Reference.—1. Stable yard, with coach-houses and stables. 2. Piggery. 3. Laundry yard, with laundry and brewhouse. 4. Poultry court, with erections for fattening, etc. 5. Dung yard and compost ground. 6. Frame ground with sheds. 7. Reserve ground, with sheds for the use of the frame and forcing departments. 8. Forcing department, with two forcing houses, and a pit and sheds, one of which may be fitted up as a room for the under gardener. 9. Kitchen garden, with an entrance from the main road, and two tanks, to be fed by a drain from the rivulet, and which may also be carried on to the frame and forcing departments. 10. Orchard and fruit garden. 11. Gardener's house and yard. 12. Lodge. 13. Alcove.

REVIEWS.

The Book of the Garden. By CHARLES M'INTOSH, F.R.P.S., etc. In two volumes. Vol. I., Structural, price £2 10s.; Vol. II., Cultural, price £1 17s. 6d. Edinburgh and London: W. Blackwood & Sons.

IN our Magazine for May we introduced this very valuable work to the notice of our readers, and gave an extract from it, as a fair specimen of its contents, on the subject of ornamental structures adapted for the pleasure ground, flower garden, etc.; and having subsequently received letters of commendation from purchasers for doing so, and of their high approval of the publication, we have great pleasure in again recommending it, and give a further extract, as illustrative that the TALENTED AUTHOR not only states what should be done, but clearly describes how it is to be accomplished, and that in such a plain and comprehensive manner, that almost any individual may at once become a practical gardener in any of its departments. The instructions are not only fully detailed, but, wherever required, are illustrated by descriptive figures. The following extract will supply our readers with the assistance rendered in reference to the correct formation of flower gardens, beds, etc. In every other department of gardening the author is equally explicit. Employers procuring the *Book of the Garden*, and presenting it to their gardeners, or

otherwise allowing them the opportunity of having it on all necessary occasions, would soon find their kindness amply repaid.

"PRACTICAL DIAGRAMS EXPLANATORY OF THE RULES FOR LAYING OUT GARDENS, MORE PARTICULARLY FOR FORMING CURVED LINES.

"To form a Volute where the border is of equal breadth.—The usual mode of forming a volute or spiral line is one of the simplest problems in geometry, and therefore requires no explanation here. The following method is, however, both original and better adapted for throwing up such a figure in groundwork. It is the invention of Mr. Alexander Forsyth, and was by him first described in 'The Gardeners' Magazine,' from which source our four following figures and

Fig. 1012.

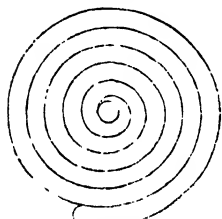
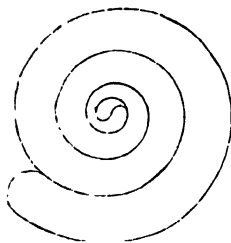


Fig. 1013.



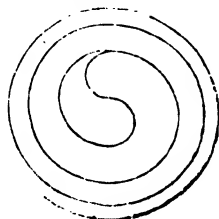
descriptions are taken. 'Make a circle around the centre of your intended volute, as much in circumference as you intend the breadth of your circuitous border to be; stick this circumferential line full of pegs, and tie one end of a garden line to one of them. Taking the other in your hand, go out to the point where you intend the volute to begin; and as you circumambulate, holding the line strained tight, you will delineate on the ground the annexed fig. 1012.

A volute where the border is intended to be gradually narrowed towards the centre, as in fig. 1013, may be thus formed:—Make a circle as before, and instead of driving the pegs upright, let them form a cone; or, instead of pegs, use a large flowerpot whelmed, and, if necessary, a smaller one whelmed over it. Measure the radius of your volute, and wind that complement of line round the cone in such a manner as to correspond with the varying breadth of your intended border, and

commence making the figure at the interior by unwinding the line.'

A volute, the border of which widens as it approaches the centre, is produced upon the same principle as the last; only, as the figure is as it were reversed, unwind the line from the other end, and fig. 1014 will be produced.

Fig. 1014.



The following ingenious method of forming circles or other curvilinear lines, is the invention of Mr. Forsyth, and must be of great practical use to those who have the laying-out of grounds, particularly intricate figures in geometrical gardens. Suppose *a b c*, fig. 1015, to be three points in the curve, taken

at equal distances (say fifty links): placing the cross-staff at b , with one of the sights pointing to a , make br perpendicular to ab , and measure its length. Then, removing the cross-staff to c , make cr perpendicular to bc , and equal to br ; and make the line brd equal to arc . Then d is a point in the curve; and in the same manner other points may be found successively.

Fig. 1016.

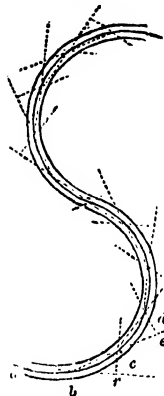


Fig. 1016 differs from the above only in this, that the angles are taken outside. Set up three pegs, say fifty links apart, as before, and fix the cross-staff in r , with one sight on the line rb , and the other pointing to c . Then measure rb and rc , and remove to the line ecb ; draw ec equal to rb , and ed equal to rc , and so on. The same end may be obtained by a theodolite, or by any other instrument for taking angles; or even with three needles stuck in a board, forming the requisite oblique angle. Setting the instrument in b , fifty links from a , with one leg of the angle on the line ba , and by the other peg directing an assistant to place the peg c at the distance of fifty links; then remove to c , and so on.

To find the centre of a circle, whose circumference will pass through three given points (not in a straight line), connect the three points abc together; from the middle of each erect lines perpendicular to them, and where these perpendiculars cut each other is the centre required.

To find the centre of a circle.—Connect three points in the circumference, and from the middle of the two lines erect perpendiculars; where these intersect each other is the centre required.

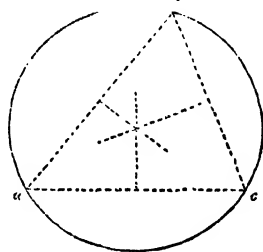
To construct a hexagon.—Divide the circle into three equal parts; from the middle of each line erect a perpendicular; and where these cut the circumference of the circle are the points where the sides of the hexagon meet.

To construct an octagon.—Divide the circle into four equal parts, by describing a square within it; erect perpendiculars from the middle of each side of the square; and where they intersect the circle are the points where the sides of the octagon meet.

Fig. 1015.



Fig. 1017.



The Gardener's Oval, when both the length and breadth are given, is thus formed : Set off the length $a b$, and breadth $c d$, perpendicular to each other; take half the long diameter, and measure from c to the line $a b$, with that length; when that line cuts the line $a b$, put in a peg; do the same on the other side, and the point e will be found; stick in there also a peg; then, with a cord passing round the pegs $i e$ and c , with the addition of the space from a to e , describe the figure with the peg c . (Fig. 1021.)

Fig. 1021.

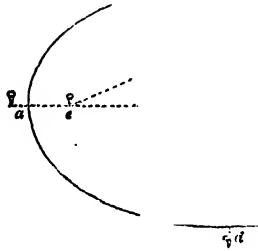
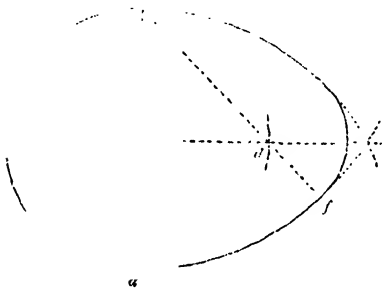


Fig. 1022.



To form an egg-shaped figure (fig. 1022).—The line $a b$ being given, divide it into two equal parts; from the point c , where these lines intersect each other, construct a circle with the radius $c a$ or $c b$; draw the line $c d$ perpendicular to $a b$; taking a and b as centres, describe two arcs; draw a line from b through d , till it cuts the arc at f ; then, with $d f$ as a radius, complete the figure.

Fig. 1023.

To set off a walk perpendicular to the line $c d$.—From the centre e , on the line $c d$, set off $e g$ and $e h$, at equal distances. From the points $h g$ draw two arcs of different radii; if, where these arcs bisect each other, a line be drawn, it will be perpendicular to $c d$. By the same rule the centre of a walk will be found perpendicular to the line $c f$; taking o as the centre, fig. 1023.

To set off a walk perpendicular to the corner of a wall.—Carry out the lines a and b straight with the face of the wall, and of equal lengths; from the two ends of these lines, with equal radii describe two

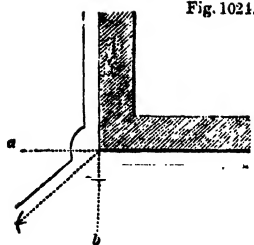


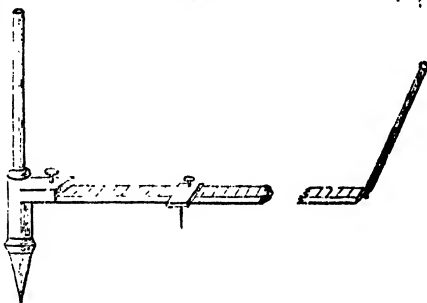
Fig. 1021.

arcs; from where they bisect each other, draw a line to the corner of the wall, which line will be the centre of the walk, fig. 1024.

The annexed diagram, fig. 1025, illustrates an instrument very useful in laying out mathematical figures. It consists of an upright pole 2 feet in length, shod with iron, upon which revolves a metallic tube, with a projecting shoulder, to which is attached, by a screw, a wooden rod 8,

Fig. 1025.

10, or more feet in length, marked in feet and inches. Upon this rod there is a moveable iron slide with an iron sharp-pointed stud. The 2-foot pole being placed in the centre, or point from which the figure is to be described, the slide is moved along the rod to the proper distance, and fixed there by means of a screw. An



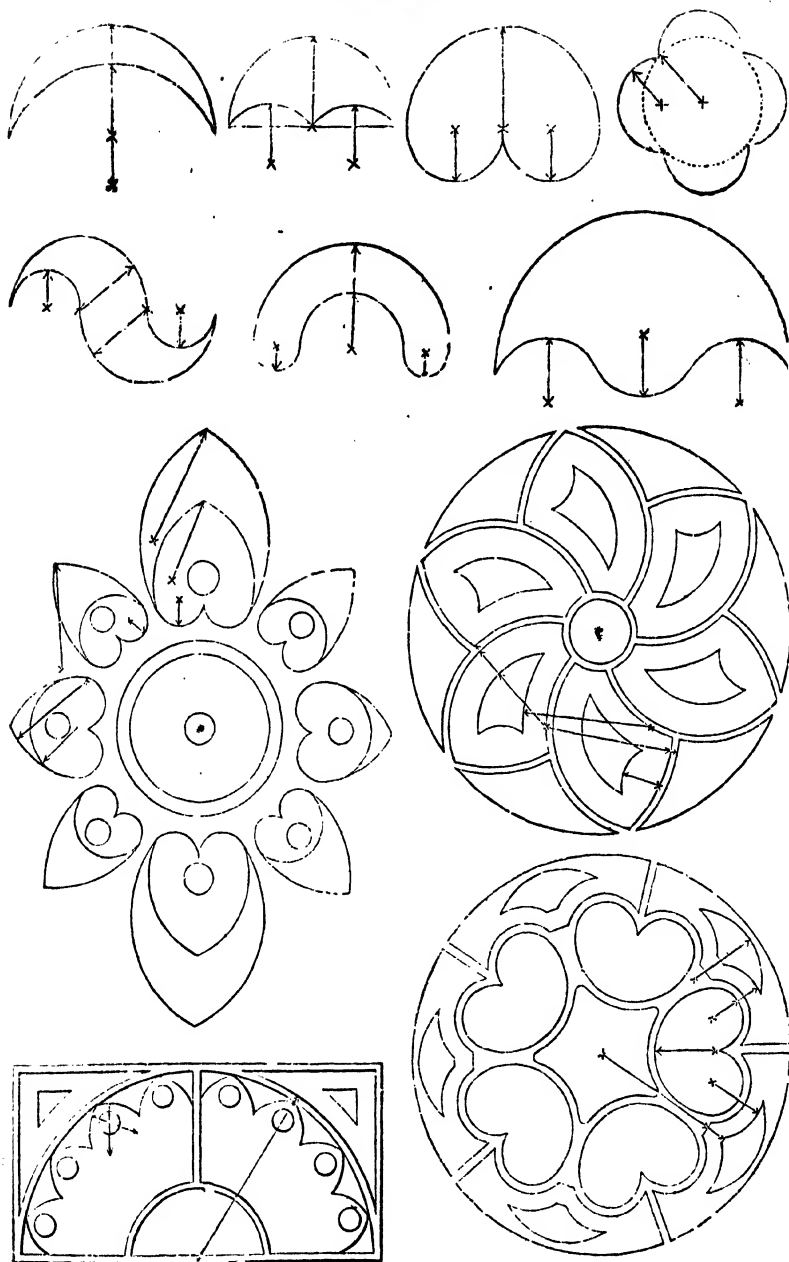
iron handle, turned up at the end of the rod, about eighteen inches in length, is taken hold of, and as it is moved round, the iron stud in the horizontal rod describes the figure intended.

Another useful instrument is a pair of wooden compasses shod with iron, the legs of which are 5 feet in length. To one leg a quadrant bar of iron is attached, and made to pass through the other leg. This quadrant-shaped iron rod is perforated at every 3 inches, and furnished with a screw-pin to keep the legs of the instrument distended to the extent required. The quadrant rod is placed exactly in the middle of the leg of the instrument, so that when the leg is moved, for example, 3 inches on the quadrant, it gives 6 inches at the points of the compasses; if moved 1 foot on the quadrant, it gives 2 feet, and so on, being always double the former extent.

The following figs. 1026 to 1040, which sometimes occur in flower-gardens, are given, with their centres marked to facilitate their being laid down on the ground. They are from a German work entitled 'Handbibliothek für Gärtner,' by Ligilir of Berlin.

Rules for calculating the length of shadows.—In selecting situations for gardens, and also for planting trees for shelter, the length to which their shadows will reach during winter deserves consideration, as also does that of the shade caused by walls and other buildings; for no screen should be planted so close as to shade any part of the ground, nor any glass roof be erected on which the sun may not shine every day in the year.

Figs. 1026 to 1036.



.1037.

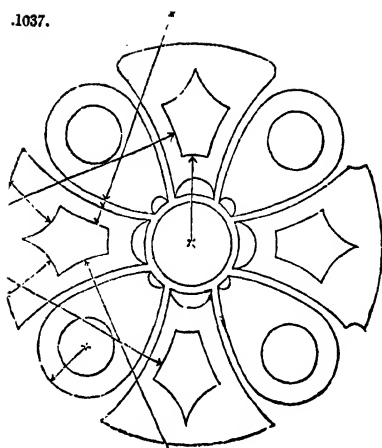


Fig. 1033.

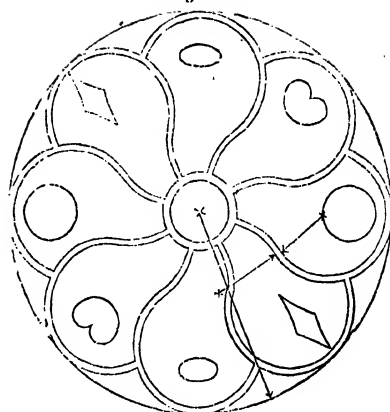


Fig. 1039.

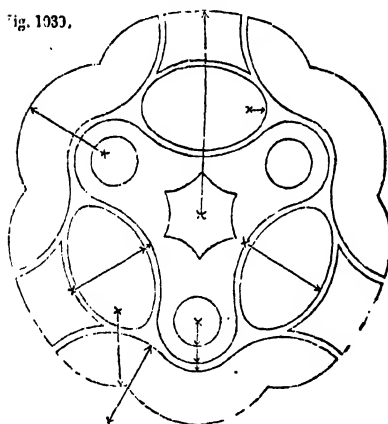
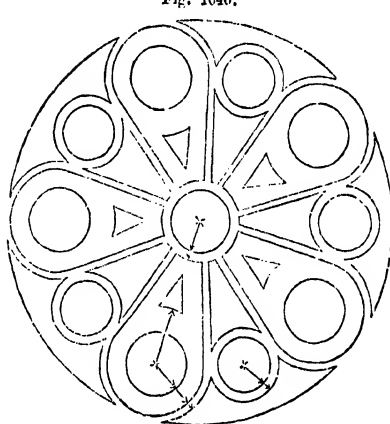


Fig. 1040.



Several rules are given for determining this. The relation between the height of a tree and the length of its shadow depends on the latitude of the place and the sun's declination, which latter will be found by consulting an almanack, and the former by the sun-dial—at least, most sun-dials have the latitude engraved on them; if not, the map of the county will give it. The height of the tree, wall, or building, and the length of its shadow on the ground, form the perpendicular and base of a right-angled triangle, the hypotenuse of which angle is represented by that of the sun's rays from the top of the tree to the ground. This hypotenuse, or direction of the sun's rays at noon, always forms, with the ground line, an angle equal to the amount of the latitude and the sun's declination added together,

from the 20th of March till the 22nd of September; but, from the 22nd of September till the 20th of March, the sun's declination is to be subtracted from the amount of the latitude. This angle being found, and the height of the wall, house, or tree taken, all the rest will be found by the rules of trigonometry.

The following simple rule may be of use to such as do not understand geometry or trigonometry, and will give the shadow near enough for practical purposes:—

Multiply the height of the wall, tree, or building—

In latitude	51½°	by	3·719.
"	52°	"	3·852.
"	53°	"	4·149.
"	54°	"	4·402.
"	55°	"	4·895.
"	56°	"	5·369.
"	57°	"	5·944.
"	58°	"	6·651.

The product will give the length of the shadow at noon on the shortest day.

Example.—What will be the length of the shadow of a tree 10 feet high, in latitude 52° on the shortest day?

3·852 the multiplier for latitude 52°.
10 the height of the tree.

38·520
12

6·240
12

2·880 *Ans.* 38 feet, 6 inches, 2 parts."

The Garden, the Grove, and the Field. By MARY MILNER. Bath: Goodwin and Co. London: Whittaker and Co.

WITH a contemplative mind, feelings of admiration, and gratitude, the excellent and talented Authoress has for twelve successive months traversed *the Garden, the Grove, and the Field*, and, after a careful examination, has culled some of the loveliest gems that adorned them. The reflections resulting therefrom are given us in sentiment and beauty of style which render the perusal increasingly delightful; and the reader thereof, on visiting similar localities, would be sure to find the book both a cheerful and instructive companion; so much so, that the flowers would appear to be the more beautiful and fragrant, whilst the music of the feathered tribes would be the sweeter. The following extract is but a *part* of the reflections and record of what came under notice during the month of July, and is only a fair specimen of each other month's observations.

"The indigenous field-plants in flower in July are very numerous; though perhaps the blossoms of the hedgerows are, for the most part, less brilliant in their character than those of the preceding month. The garden-flowers, on the contrary, now exhibit a higher degree of splendour.

“‘The weeds of one country,’ as Dr. Edward Daniel Clarke observes in his narrative of his travels in Sweden, ‘are the flowers of another;’ and the rose, which grows wild in the sunny plains of Syria, takes precedence of all other flowers, in its cultivated state, in the estimation of the most flower-loving nation of Europe. The natives of Paris particularly prize the white damask rose; but roses in general are highly valued by the French. It is still an annual custom in some of the rural villages of France to present a rose, on a certain day, to the cottage maiden whose character and conduct have gained for her the especial approbation of her neighbours and companions; she who receives this graceful tribute of rustic esteem and affection being distinguished, during the succeeding year, by the appellation of *La Rosière*.

“The stately holly-hock (*Alcea rosea*), also a flower of Eastern origin, and now common in English gardens, was formerly known in this country as the ‘foreign rose.’ Like several plants of the mallow family, the holly-hock has been extensively cultivated for the sake of its fibres, which are sometimes converted into thread, like those of hemp or flax. The stalks of this plant yield a blue dye, scarcely inferior in its colour to that procured from indigo. The common holly-hock, which is a biennial plant, growing to the height of eight or ten feet, exhibits almost every variety of tint, from pure white to that rich dark puce, which gardeners and connoisseurs often profess to prefer to the beautiful hue of the clusters of pink flowers which clothe the tall holly-hocks in many a cottage-garden, and make them look like ‘pyramids of roses.’

“Fuchsias are now in the perfection of their beauty. Many varieties of these lovely flowers, the whole tribe of which was unknown in England less than a century ago, now wave their rich crimson bells in our humblest village gardens. The most beautiful, perhaps, of the Fuchsia family is the scarlet variety (*Fuchsia coccinea*). It was brought into this country from the western world in the year 1788; and being presented to Queen Charlotte, was introduced into the Royal Gardens at Kew. The other varieties have been for the most part brought into England within the last thirty years.

“‘Flowers,’ observes an original writer, ‘have a language; not merely that which, speaking in the fragrant incense of unceasing praise, ascends to Him who bids us “consider the lilies of the field;” nor that which, touching some sweet chord of tender association, awakens the sympathy of many a heart. Their language is the language of FACTS. To select one example. What does the richly coloured fuchsia suggest to the well-informed and meditative mind? It suggests a wide and richly cultivated plain; a shining lake; in the centre of which there once arose a magnificent city, crowded with palaces, whose chambers were tapestried with a rich mosaic of bright-hued feathers, and ceiled with plates of precious metal; whose gardens surpassed the choicest horticultural exhibitions of modern Europe; whose libraries were filled with rolls of cotton painted with no mean

skill; and with bunches of curiously knotted thread, which served the Mexican students,—and they were not a few,—as books, in which they might peruse the chronicles of their country, the songs of their poets, and the researches of their *savans*.

“‘And what is Mexico now? Far in the depths of untrodden forests, or in the midst of unhealthy plains, stand the ruins of vast and richly sculptured temples, and of palaces worthy of those who erected such fanes; ruins half hidden by the luxuriance of tropical vegetation, inhabited by bats and reptiles, and shunned with superstitious awe by the timid descendants of their founders; and ‘mid those ruins the FUCHSIA springs, and its drooping flowers of sanguine hue assimilate well with the locality.’

“The Passion-flower (*Passiflora carulea*) is now in full bloom, and forms, with its spreading, branching, and dark leaves, a beautiful creeper for the covering of a wall or trellis having a southern aspect. In the wild woods of America it may be seen climbing up to the topmost sprays of the tallest forest-trees, and adorning their branches with its flowery garlands. Its fruit, also, is much valued in hot countries. The name given to this flower has the same signification in most European countries. It is related that the Spaniards, when they first saw it in the New World, regarded it as a type of the future conversion of the inhabitants to Christianity; imagining that its several parts had reference to the crucifixion. Its five anthers seemed to them to represent the five wounds of our Saviour; its triple style, the three nails by which He was fastened to the cross; and its ray-like petals, the glory which in many old paintings surrounds His head. The rose-coloured Passion-flower, which grows wild in Virginia, is believed to be the species which was first cultivated in England.

“It were vain to attempt to enumerate the flowering plants and shrubs which are at this season in bloom and beauty in our English gardens. A few, however, may be particularized. Sicily contributes the fragrant sweet pea, known as the painted lady (*Lathyrus odoratus*), whose butterfly-like blossoms need no cultivation in that sunny island; and Ceylon sends us the richer and darker varieties, which flourish in wild luxuriance under the beams of her more ardent sun. By their butterfly-shaped flowers, persons who know nothing of the science of botany may always recognise the pea-tribe of plants; and no tribe perhaps is more numerous. The sweet odour of blossoms belonging to this family, mingled with that of the sweet-briar, the honeysuckle, and other fragrant flowers and herbs, is prevalent in English meadows, as in English gardens.

“Dr. Paley mentions the pea flower as affording a remarkable example of the ‘mechanical contrivance’ often observable in the works of the great Author of Nature. Seeing a field of peas in blossom, he observed that all the flowers *turned their backs to the wind* whenever it blew strong enough to endanger the delicate parts on which the ripening and preservation of the seed depend. ‘Their doing this,’

as he remarks, 'is the result of the peculiar structure of the flower; and is strictly mechanical; as much so, as the turning of a weather-board, or tin-cap, upon the top of a chimney.' Again; 'Why,' asks the author of the 'Natural Theology,' 'does the pea put forth tendrils; the bean, not? Because the stalk of the pea cannot support itself, while the stalk of the bean can.' It is further observed, that in the pea-tribe, these clasps do not make their appearance *till they are wanted*; till the plant has grown to a height which renders support necessary.

"Certain flowers, as it is well known, open and close their petals at particular hours. This circumstance, or rather the general fact of the periodical sleep of plants, was first discovered by Linnæus. The occasion of this discovery is said to have been as follows:—

"The great botanist having been presented by a friend with a rare and very beautiful flowering plant, and desiring one night to visit it in his greenhouse, proceeded thither, accompanied by his gardener, who carried a lantern. The light, however, on being directed towards the plant, showed no blossom. The blossom had vanished. On the following morning, it was again apparent. At night, it had a second time disappeared; and on the next morning it once more spread its petals before the astonished eyes of Linnæus. The gardener believed his master to be deceived. The blossoms, in his opinion, withered each night, and fresh ones opened on the succeeding morning; and this opinion would probably have been received as well founded, and established accordingly, had not the celebrated Swede been a more diligent observer than his gardener. Had it been established, the botanist might never have made that curious series of observations, which ultimately led to the arrangement of his 'Dial of Flowers;' would, indeed, in all probability, never have conceived his

"Beautiful thought to mark the hours,
As they floated in light away,
By the opening and the folding flowers,
'That laugh to the summer's day.'

Linnæus, however, was not satisfied by the hasty assumption of his gardener. He visited the greenhouse on the third evening; and finding that the blossom was invisible as before, examined the plant carefully, and detected the flower folded up and *asleep* under its leaves. Deeming it unlikely that such a phenomenon should occur only in a single instance, he persevered in his observations; and the curious fact of the regular sleep and awakening of plants was established.

"Connected with the subject of the periodical opening and closing of the petals of flowering plants, a deservedly popular writer* has some beautiful observations.

"How still, how solemn, and yet how peaceful, is the witching

* Mary Roberts.

hour of deep midnight, when the glorious stars are keeping their watch on high, and when the earth is covered as with a mantle of silence and obscurity! I have often looked within the garden range for flowers that grew there in all their fragrance and beauty before the sun had set, but have not found them; and so it is in the green meadow, or beside the road. You may not see a daisy in the grass, nor yet a single hawk-weed on the bank; the brilliant goat's-beard has folded up its petals; and the dandelion, that loves to cover the interstices of broken pavements with its ample disks, is no longer visible. Night with her broad shadows has not veiled them; for there *are* flowers which yet look the pale moon in her face; and some few there are that open only when the day has closed in. They open, that such insects as love the night, warmly coated moths, and ephemera, may drink and be refreshed, when all other vegetable fountains have ceased to flow; or when the guardian petals, by which they are surrounded, have folded up to keep them safe from all intruders.

"I have seen the evening primrose, or the evening star, as the plant is sometimes called, gradually expand her leaves; looking fairer, and becoming larger, and perfuming the vagrant breezes as they passed, while other flowers were closing; till at length when the moon had risen, or, perhaps, only stars looked down from their high stations in the heavens, this fragrant flower had thrown open all her stores, and busy creatures might be seen repairing thither as to a nightly banquet. * * *

"In one of the loveliest portions of the Vale of Clwyd, in a spot much to be remembered,—for the moon was full, and the mists of night veiled, as with a light transparent vapour, the features of the landscape—I have seen the evening primrose, with its fragrant and large yellow flowers, around which night moths and ephemera were gathering. Dusky-looking, yet beautiful but evanescent creatures, often the birth of the noon-day, attaining their full maturity at that still hour when the evening primrose opens her yellow-tinted petals, as if to welcome back the twilight; a star of earth, shining alone for them, and guiding their insect steps or wings, when other flowers have folded up their petals, and are gone to rest. * * * She loves to keep her vigils by dim twilight, or beneath the beams of the cold moon, doing, like Charity, her good deeds in secret. When all eyes, save those of Him who made her, are closed in sleep, she gives both food and sweet nectareous juice to many weary ones, who would perish but for her timely-aid. He who watches by the evening primrose, when the night is dark and sultry, and wayfaring creatures could not find their way to her hospitable petals, may see a phosphoric light gleaming from the flower. When not a tree or rock can be discerned, she emits a pale light from all her hundred flowers, and looks as if illuminated for a holiday. You may then see, more clearly than ever, in the bright moonshine, how the stem, and leaves, and petals are covered with grateful creatures. Some re-

turning from the lighted petals, where they have been fed or refreshed at the vegetable fountains, to take their rest among the leaves; others hurrying up the stems; and others, again, assembled in the corollas. All and each are either thickly coated or else enwrapped in down and feathers, the better to resist the heavy dews of night.'

"The mechanism by the instrumentality of which flowers close or open their petals is among the wonders of the vegetable creation. The effect is produced by a multitude of spiral fibres, by means of which the stem of a plant is bent, or recovers its erect position, as its welfare may require; and its beauteous corolla is unfolded to the beams of the sun, or closed against the dews of night, or the incursions of noxious insects. By means of this marvellous mechanism many an apparently insignificant wild flower becomes a species of *barometer*; and is actually consulted as such by the peasantry in certain districts."

The Beekeeper's Manual; or, Practical Hints on the Management and Complete Preservation of the Honey Bee, with a Description of the most approved Hives and Modes of constructing them, etc. By HENRY TAYLOR. *Fifth Edition.* Illustrated by a *Hundred well-executed Engravings.* London: Groombridge and Sons, Paternoster Row.

THE exterior of the book is handsome, and the interior exceedingly valuable. It appears to contain every information that can be required on the subject treated upon. We have read other works on Bees, but this stands pre-eminently superior to all others. The present edition contains details of all useful discoveries and improvements that have transpired since the Fourth Edition was issued in 1850. Every Beekeeper ought to possess the book, as it is the *sum-mum bonum* on their treatment, etc.

NOTES ON NEW AND SELECT PLANTS.

110. *AKEBIA QUINATA*. Nat. Ord. *Lardizabalaceæ*.—Said to be a native of Japan, but has only been found by Mr. Fortune in China. It is a slender evergreen shrub. The flowers are produced in axillary racemes, and are slightly fragrant; the male flowers are smaller, terminal on the raceme, pink and white; female flowers purple. (*Fig. Bot. Mag.*, 4684.)

111. *NICOTIANA FRAGRANS*. Nat. Ord. *Solanaceæ*.—A beautiful species of Tobacco, attaining a large size under cultivation. Messrs. Macgillivray and Milne found it growing on rocks and waste places, on the coast of the Isle of Pines. Its blossoms are white, deliciously fragrant, very large, and produced in abundance, it moreover continues to bloom all through the summer. Under cultivation the plant attains to the height of four feet; the leaves are thick and fleshy. The terminal panicle of flowers contains about eighteen or twenty blooms in each; corolla white, two inches across; tube

slender, three to four inches long. Very fragrant. It is a plant of easy culture, and deserves to be in every cool greenhouse. (*Fig. Bot. Mag.*, 4865.)

112. *DRYMONIA VILLOSA*. Nat. Ord. *Gesneriaceæ*.—It appears to have been introduced into Europe by one of M. Van Houtte's collectors, from Surinam. It is a sub-herbaceous plant, attaining a foot and a half in height. The stems and foliage are densely villous. The flowers are axillary; corolla white, with a purple marking in the throat, an inch and a half across. (*Fig. Bot. Mag.*, 4866.)

113. *STYLOPHORUM DIPHYLLUM*. Nat. Ord. *Papaveraceæ*. Syn. *Meconopsis diphylla*.—A pretty little plant of the Poppy tribe; a native of the woods of the Western States of America. It does not grow so large when under cultivation as in its native state. The plants grow from six inches to a foot high, and resemble the *Meconopsis Cambrica*. The foliage is pale green, and the flowers light yellow. (*Fig. Bot. Mag.*, 4867.)

114. *THERMOPSIS BARBATA*. Nat. Ord. *Leguminosæ*.—Major Madden discovered this species growing on the Himalayas, at an elevation of 10,000 to 13,000 feet. Its pea-like flowers are of a dull violet purple, shaded with green, and are produced in short, axillary racemes, forming together a compound raceme, or short spike. It has been found to flourish well in the open air, Mr. Moore having had it in bloom in the Glasnevin Botanic Garden, in June of the present year. (*Fig. Bot. Mag.*, 4868.)

115. *LILIUM SUPERBUM*. Nat. Ord. *Liliaceæ*.—A hardy species, introduced into England many years ago from America. The flowers are in form like those of the Martagon Lily; the floral stem rises from four to five feet high, terminating in a large *pyramidal-shaped head* of beautiful flowers, which are of a rich yellow at the centre, numerously spotted with dark velvet, and the curved ends of the petals a rich carmine scarlet. It is exceedingly showy, and merits a place in every garden; and bulbs may be procured at a cheap price. (*Fig. Flor. des Serres*, 1014.)

116. *PAPAVER NUDICAULE*, Var. *CROCEUM FLORE-PLENO*. Nat. Ord. *Papaveraceæ*.—A charming variety of the dwarf hardy perennial kind, in habit somewhat like the common Welsh Poppy. The flower-stalks rise about a foot high. The flowers are generally quite double, but occasionally will have a semi-double or a single one. Each blossom is about two and a half inches across, of a rich orange-yellow colour. It blooms freely, and merits a place in every flower garden, blooming from August to October. It is suitable for a rockwork. (*Fig. Flor. des Serres*, 1017.)

117. *ASTROLOMA SPLENDENS*. Nat. Ord. *Epacridæ*. Syn. *Styphelia splendens*.—An *Epacris-like*, erect branching shrub; a native of New Holland. The flowers are tube-shaped, about an inch long, of a bright carmine red colour; they are produced in abundance in winter, spring, and the early part of summer. It merits a place in every greenhouse. (*Fig. Flor. des Serres*, 1018.)

MISCELLANEOUS.

ROYAL BOTANIC SOCIETY'S EXHIBITION, REGENT'S PARK, *June 13th*.—There were about the usual collections of stove and greenhouse plants, we omit those; and only give the following:—*Pelargoniums, Six New Varieties*.—1st, for Governor-General, Carlos, Omer Pacha, Serena, Zeno, and Majestic. 2nd, for Attraction, Phaeton, Purple Perfection, Rosa, Carlos, Pandora. 3rd, for Conqueror, Empress, Rebecca, Laura, Gem of the West, and Lucy. 4th, for Fair Ellen, Carlos, Governor-General, Mary, and Seraskier.

Pelargoniums, Best Twelve (Nurserymen).—1st, for Topsy, Rosamond, Mochanna, Portio, Esther, Leonora, Sanspareil, Achilles, Virgin Queen, Rowena, Majestic, and Astraea. *Best Ten* (Amateurs).—1st, for Phaeton, Lucy, Rosa, Queen of May, Ariel, Optimum, Purple Perfection, Enchantress, Eleanor, and Magnet.

Pelargoniums (Fancy Class).—*Best Specimen for Perfection*, two feet high and three feet across, grown in an eight-inch pot, covered with flowers. 1st Prize for six (Nurserymen) was for Celestial, Goliath, Jenny Lind, Electra, Richard Cobden, and Formosissimum. 2nd, for Advancer, Celestial, Queen Victoria, Miss Sheppard, Madame Rosati, and Reine des Français. *Best Six* (Amateurs).—1st, for Formosissimum, Hero of Surrey, Jenny Lind, Princess Alice Mand, Fanny, and Fairy Queen.

Fuchsias.—*Six Best Light Varieties* were Queen of Hanover, Duchess of Lancaster, Miss Hawtrej, Pearl of England, England's Glory, and Elizabeth. *Six Best Dark Varieties* were Vanguard, Macbeth, Prince Albert, Glory, Verrio, and Autocrat.

Seedling Pelargoniums (not yet sent out).—Best, which obtained certificates, were Meteora (Foster's), a bright orange, with dark maroon spot, profuse bloomer, and remarkably showy. Pallas (Hoyle's) rose, with crimson spot and white centre. Quadroon (Beck's), a rich dark spotted or painted flower, very attractive, of medium size. The following new seedling *Fancies* were shown, and had certificates:—Turner's Masterpiece, chocolate and violet, edged with white. Beauty of Slough, rose edged with white, and light centre. Eva—not a Fancy (Hoyle's), bright rosy orange, with dark blotch, and white centre, good shape.

BRIEF REMARKS, &c.

GROUPING OF FLOWERS.—Amongst the pleasures presented to us by the culture of flowering plants, there are few that exceed what we experience from the sight of a multitude of flowers, varying in their colour, form, and size, and in their arrangement upon the stem that supports them. It is probably owing to the admiration bestowed individually upon each, and to the attachment felt for them in consequence of the great care they have required, that pains have hitherto not been taken to arrange them in such a manner as to produce the best possible effect upon the eye, not only separately, but also collectively. Nothing therefore is more common than a defect of proportion observed in the manner in which flowers of the same colour are made to recur in a garden. At one time, the eye sees nothing but blue or white, at another, it is dazzled by yellow scattered around in profusion. The evil effect of a predominating colour may be further augmented when the flowers are of approximating, but still different, shades of colour. That an assortment of complementary colours is never disagreeable is a truth that has long been known to many of our best gardeners and amateurs, and that the brilliancy of colours is considerably increased by employing one colour complementary to another side by side. The principal rule to be observed in the arrangement of flowers is to place the blue next to the orange, and the violet next to the yellow, whilst red and pink flowers are never seen to greater advantage than when surrounded by verdure and by white flowers; the latter may also be advantageously dispersed amongst groups formed of blue and orange, and of violet and yellow flowers. For although a clump or bed of white flowers may produce but little effect when seen apart, it cannot be denied that the same flowers must be considered as indispensable to the adornment of a garden, when

they are seen suitably distributed amongst groups of flowers whose colours have been assorted according to the law of contrast. White flowers suitable for grouping with some of our best bedding plants are, however, not sufficiently plentiful, but by having recourse to some of the finely variegated-leaved plants, we are enabled to produce some very beautiful and well-contrasted groups. One of the best and most useful of variegated-leaved plants is Mangles's *Variegated Geranium*; its half-trailing habit and beautifully marked foliage well adapt it for bedding purposes. I may here just observe there are several strains of this *Geranium*, some of them being much more variegated than others. If care be taken, when propagating, to select only those shoots the leaves of which are highly variegated, no one will be disappointed with this variety. When intermixed with *Scarlet Defiance* or *Beauty Supreme Verbena*, few beds are more beautiful; or it is equally at home when surrounding a mass of *Purple Unique*, *Tom Thumb*, *Punch*, or any other of the free-flowering scarlet *Geraniums*. *Flower of the Day* and *Mountain of Light* are both fine varieties, and make beautiful beds, either upon grass or gravel. If upon grass, an edging of *Defiance Verbena* will improve the appearance. Another useful little plant is the *Variegated Alyssum*. This will be found to make an admirable edging to a bed of *Double Purple Jacobæa* (the dark variety), or to *Purple King Verbena*. A bed of scarlet and white may be composed of *Lobelia fulgens* and *Shrubland White Petunia* intermixed, and a band of *Brillante de Vaise Verbena*. The spikes of *Lobelia* flowers overtopping the *Petunia* have a pretty effect. Another very pretty and highly fragrant bed may be produced by planting the centre with *Mrs. Bosanquet Rose*, and around it *Géant des Batailles*, surrounding both with *Mignonette*. *Mignonette* also forms a good edging to a bed of well-selected *German Stocks*. *Salvia patens*, when well done, is one of our most beautiful blue-flowering plants, and when combined with *Calceolaria amplexicaule* or *C. angustifolia*, a very gay blue and yellow bed is produced. *Clarkia pulchella* and *C. pulchella alba*, when blended together, make a pretty pink and white bed. Again, a bed of faucy *Geraniums*, composed of the following varieties, *Diadematum* in the centre, with an outer row of *Statuiski*, *Decora*, *Sidonina*, *Nosegay*, and *Lady Flora Hastings*, with a band or edging of blue, yellow, purple, and white *Pansies* planted alternately, will produce an effect pleasing to the most fastidious. Numerous other examples might be given, but the above will suffice to illustrate the principle to be observed. Whether the garden be large or small, or whatever may be the character of the stock with which it is intended to be filled, it is alone necessary to remember that the effect of each colour is enhanced by employing that which is complementary immediately about it. Strict attention to the heights, habits, and modes of flowering of different plants is, of course, imperative, and the effect to be produced will greatly depend on their suitability for their several situations. In all cases, before commencing with planting out in the flower-garden, a careful study of the proposed arrangement should be made, and its assumed effect be well matured; and in every case, whilst strict attention should be given to the subordinate details, each should subserve the one purpose of producing an harmonious whole.—*J. Bayley (Midland Florist)*.

MOSS A PROTECTIVE MATERIAL FROM FROST.—For several years I have used moss, gathered from the woods, to protect my China, Bourbon, and other *Roses* from frost; and, from recent experience, am so firmly convinced of its beneficial effects, that I feel the information cannot be too widely spread. My practice has been to place round each plant a quantity of moss, in the shape of a cone, averaging fifteen to eighteen inches in width at its base, nine inches at its summit, and from twelve to fifteen inches in depth. We have had scarcely any snow here; but one morning, observing that my thermometer, placed on the northern side of a tree, about six feet from the ground, in an exposed situation, registered 26° of frost, I felt curious respecting the efficacy of my moss protectives. To my agreeable surprise I found that, under cones of moss not more than nine inches deep, owing to their settlement from the rains of winter, the soil was not frozen in the least degree, and the young shoots and buds of the *Roses*, at the bases of the plants, fresh and vigorous as in the mildest weather. I have hitherto recommended moss, when used as a protective for *Roses*, not to be placed in contact with the branches of the plants, fearing the effects of damp during the humid weather of a great portion of our winters; but owing to my men not exactly going according to orders, many of my protective cones have been placed closely round the plants; no injury from damp has resulted, and their appearance is highly promising. From

having thus so recently experienced the sure and certain protection from frost that moss gives, my ideas have taken a wider range, and I feel convinced that Pelargoniums, by having their leaves taken off from the bases of their shoots towards the end of October, and a cone of moss placed round each plant, may be preserved in our open borders during our severest winters, without injury. Fuchsias, hardy greenhouse plants, half-hardy evergreens, and many other desirable plants, may also be preserved in our open borders. We may thus be able to have them established, and of many years' growth, in our gardens, instead of transplanting them annually, as at present in May; for by the time their roots are well established, frost comes and obliges us to remove them into winter quarters. By protecting them with moss, the lower parts of Pelargoniums and Fuchsias will alone be preserved; but these, as is well known, are full of buds, and their roots being perfect, the plants, after being headed down, will shoot most vigorously, far beyond plants only recently transplanted. It is not perhaps generally known that many tender evergreens will suffer but little in their branches from severe frost, if their roots are well protected. To such moss may be applied unsparingly, with the certainty of pleasing results.—*Thos. Rivers.*

MANNA.—Of the Manna, so called, of Scripture we know nothing further than what we learn from the Sacred Book. The Manna known in medicine is a sweet concrete exudation, procured from a tree called by Linnæus *Fraxinus Ornus*, or the Flowering Ash (perhaps the *Fraxinus rotundifolia* of Lamarck), and a native of the south of Europe and Asia Minor; but the Manna seems chiefly to be collected in Calabria and Sicily. In the districts of Capace, Cinesi, and Fabarotto, where the best Manna is obtained, the tree does not form woods, as is commonly supposed, but is cultivated in separate plantations. These plantations generally present regular squares, hedged in with *Cactus Opuntia*. The trees are planted in rows, and are from two to eight inches in diameter, with stems from ten to twenty feet high, which from the first shoot are kept smooth and clean. The soil is carefully loosened and freed from weeds. After the eighth year the trees yield Manna, which they continue to do from ten to twelve years, when they are cut down, and young shoots from the roots trained; one root-stalk frequently yields from six to eight new trees and more. For the production of the Manna, young and strong shoots are requisite; but they are not tapped till the tree ceases to push forth any more leaves, and the sap consequently collects in the stem. This period is recognised by the cultivators, from the appearance of the leaves; sometimes it occurs earlier than at others, and the collection of Manna takes place either at the beginning of July or early in August. Close to the soil cross sections are made in the stem, and in the lowermost sections small leaves are inserted, which conduct the sap into a receptacle formed by a Cactus leaf; this is the way the Manna is obtained. The incisions are repeated daily in dry weather, and the longer it continues the more Manna is obtained. The stems are left uninjured on one side, so that the Manna runs down the smooth bark more easily. The next year the uninjured side is cut. After the Manna has been removed from the trees, it has further to be dried upon shelves before being packed in cases.—*Hook. Jour. Bot.*, 124.

ON PHOSPHORESCENCE IN THE MOSSES.—Dr. Milde has recently made some observations on this subject, in the *Botanische Zeitung*, which are interesting in reference to the debated question of luminosity of plants. He states that he had formerly observed an emerald-green light emitted from the germinating fronds of Ferns, which were standing in a dark part of the Orchis-house of the Botanic Garden at Breslau, and this exactly resembled what he had seen on the little germinating plants of *Schistostega osmundacea* (the well-known *Catoptridium swaragdinum* of Bridel), in hollows of the cliffs at the summit of the Altvater, in Bohemia, in 1848. This summer he met with the same phenomenon in another locality, perceiving the light in clefts of the rock at some distance. The rock was kept constantly moist by a shower of fine spray from a neighbouring waterfall. The light was emitted from globular bodies. On close inspection it was found that the luminous places were thickly clothed with another moss, *Mnium punctatum*, almost every leaflet of which bore a largish drop of water, and this produced the pretty light which made exactly the same impression on the eye as that of the germinating *Schistostega*. Meyen was correct in saying that the luminosity of this latter must be struck out of the

phenomena usually cited as illustrations of the evolution of light from plants; for it is the cellules of the germinating plant of *Schistostega* swollen into little globules, and the little drops of water on the leaves of *Mnium* which produce that glimmering, by a peculiar refraction and reflection of the daylight; and there is no true production or evolution of light from the substance of these vegetables. The light of *Schistostega* is improperly termed phosphorescent, for it is of a delicate emerald-green.

ON DESTROYING THRIP.—Mr. J. Barnes, of Bickton, says, "I take a peck and a half of soot, and put it into one hoghead of soft water, stirring it well with an old broom or batten, every day for ten days or a fortnight. I then strain off the water through a fine sieve, or piece of canvas, into another tub, on a peck of charcoal, and drop into it afterwards one or two lumps, or about three pounds of fresh lime; in about two days after I strain it again, and it is then clear enough to syringe any plant or plants with. It will not only extirpate thrip, but many other troublesome insects also; and it is famous liquor to syringe with, whether for destroying insects or not, as it induces general vigour and healthiness amongst plants of all kinds."

ON GUANO FOR POT PLANTS, ETC.—In reply to A. B., in a former number, on Guano, I beg to inform him, that it should be mixed with about five times its bulk of earth, and pot in the same any strong-growing plants, as Pelargoniums, etc. On the open border it should be given about the same strength, applying it in wet weather. When the Guano comes into immediate contact with seeds it is injurious to them, so that it is best to carefully mix up the same with a proper quantity of soil before spreading upon the ground, afterwards dig it in. When applied in a liquid state, do it weakly to commence with, and as its effects are soon visible, it may be regulated as appearances suggest. So very different are the constitutions of plants that no exact standard can be arranged, and experience will dictate the best.—*A Practitioner*.

ON PRESERVING PINKS, CARNATIONS, ETC., FROM RABBITS.—Last year my Pinks and Carnations were almost entirely destroyed by rabbits during a storm, and all means I could devise proved a failure. I was advised this winter to take some strips of rags, as broad as my hand and about a foot long, and dip them into melted sulphur, and then fix them into clefted sticks about half a yard high, allowing the rags to dangle about as flags, these I was to place in and around the beds, at about four feet apart. I adopted the plan, and though the temptation has been great during the last few weeks of storm, not one has ventured to touch the Pink or Carnation beds, nor where I had placed a prepared flag at the side of a single plant in the border.—*A Northern Florist*. [Dusting them over with soot will also answer.—ED.]

DESTRUCTION OF RED SPIDER, THRIP, ETC.—"Delta" mentions the circumstance of a paper having been read before the Horticultural Society of London, respecting laurel leaves being used, when bruised, for destroying these pests. As a practical man, I can speak from experience on this subject. Being in the habit of growing melons and cucumbers rather extensively for some years, of course I have been troubled with these insects as well as my brother gardeners, and this year rather more than usual. The method that I have adopted for many years for killing the red-spider, thrip, and green-fly is as follows:—When the plants appear attacked with the insects, I get a quantity of laurel bruised, and put it into the frame or frames, as it may be, about three o'clock p.m. It should be dispersed all over the frame, but by no means allowed to touch the leaves of the plants, for, if you do, it is sure to affect them very materially; then shut down the lights as closely as you possibly can, and should the sun be very fervent at the time, I always throw a single mat over the frame, in order to keep the leaves of the plant from being burnt. The heat to which I allow the frame to rise is from 80° to 100°; never allow it to rise above that point, or you will be sure to lose plants, crop, and all. The length of time that I allow this heat to remain in the frame is two hours only; this time may perhaps appear short, but such is the fact. About six o'clock the mat is taken off, and a little more air is admitted to the plants. On the next morning the laurel is all taken out, and the plants are well syringed with warm water, and, of course, shaded during the day. I am certain that by the evening of the second day there will not be the slightest appearance of thrip or spider. If "Delta" will try this plan, he may be sure of success.—*Devonians (Gardeners' Chronicle)*.

Several inquiries having been made relative to a means of destroying ants, I have effectually succeeded with the following method:—A small handful of African or Peruvian guano sprinkled over the place they inhabit, sprinkling it over with water soon after; or guano-water applied—one pound to four gallons of water will be strong enough. A few applications will soon effect a complete riddance.

REMARKS ON CHARCOAL USED IN COMPOST FOR POT PLANTS, BY MR. JAMES BARNES.—It has been said that the fertilizing properties of charcoal as a manure have been long known, although it was merely by accidental observation I first discovered its value in horticulture; in my opinion it has not yet met with that attention which its merits deserve. Since my application and use of charcoal have been made known, I have received many interesting communications from practical gardeners and amateurs, expressing their conviction of its valuable properties; in other cases there seems to have been some mystery or uncertainty attending its application, for the result has not been so successful: such always has been the case in similar matters, and, doubtless, will continue to be. I will here attempt to explain, or rather state, the principal object that must be kept in view by all those who would wish to avail themselves fully of the fertilizing qualities of charcoal, when applied as a manure; one of its most useful qualities, then, consists in its affording thorough drainage, and thereby maintaining a kindly communication between the atmosphere and the earth, without which but a trifling degree of benefit will be derived from its fertilizing properties. Other good qualities consist in its absorbing and condensing powers, and in its giving off slowly and permanently, so long as in communication with the atmosphere, those natural gases which are most fitted for promoting the growth of vegetation. To these qualities I attribute its excellence. I have invariably found that plants to which charcoal has been applied, and which have thus had thorough drainage of the soil secured, have continued in the most luxuriant condition, the roots not only numerous, but also in high vigour, and clinging around it and penetrating the cracks and fissures; whereas in cases of slovenly or imperfect drainage, quite another effect has been produced, and but trifling benefit realized from its application. Thorough drainage should certainly, for all purposes of cultivation, be the first consideration—the standing rule and foundation stone with all cultivators of the soil. Its effect is to admit the natural gases of the atmosphere to act in combination with the salts and bases of the earth, thus securing the most natural and perfect results.

FUCHSIAS FOR BORDERS, HEDGES, ETC.—Several correspondents have requested us to give a list of the best kinds of Fuchsias most capable of enduring the open air in this country. We have many hundreds growing in beds, and along borders by the sides of walks, etc., and find that nearly every one will succeed well, with the exception of fulgens and corymbiflora, though both kinds, even when cut down to the ground in winter, have pushed up again in spring. We find that the hard-wooded kinds do the best, such as Baxteri, elegans, virgata, formosa elegans, and those of a similar habit. There are many splendid hybrids, raised between the soft-wooded and hard-wooded kinds, which we find do admirably well; most of the recent new kinds are of that class. We have lately seen some fine hedges of Fuchsias in profuse bloom; they formed the divisions of several front flower gardens having a south aspect, and each hedge, eight yards long, was of a different kind, three feet high, and had an elegant appearance. They bloom, too, from May to November.

PROPAGATION OF STOVE AND GREENHOUSE PLANTS.—The methods of propagation are by cuttings, layers, suckers, seeds, and divisions of the roots.

Cuttings.—No period can be definitely fixed for putting in the cuttings of the different genera; this must always be left to the judgment of the cultivator. Some plants propagate freely by cuttings of the young and tender wood, as *Mcclostoma* *Barleria*, *Astrapea*, *Inga*, etc.; others, when the wood begins to assume a brownish colour, or is half ripened, as *Ixora*, *Bauhinia*, *Passiflora*, *Ruellia*, etc.; whilst others will only strike freely, when the wood is perfectly ripe, as *Grevillea*, *Blakea*, *Chcirostemon*, *Achania*, etc., but as a general rule, the proper season lasts from January to August. All hard-wooded kinds make roots best in *clear sand*, but soft-wooded kinds require to be planted in *light loamy soil*. After properly draining the pots, fill them with sand or soil, according to the kinds intended to be propagated. On no account mix soft-wooded and hard-

wooded kinds together in the same pot. If a hotbed frame can be appropriated to the purpose of striking the cuttings, so much the better; but if not, place them in a damp, shady part of the stove; in either place they require to be sheltered from the rays of the sun, until they have struck root. Care is requisite in removing the leaves from the lower end of the cuttings, that the bark be in nowise injured. Never take off more leaves than are necessary for the insertion of the cutting, nor mutilate or shorten the remaining ones. After the cuttings are put in, a gentle sprinkling of water may be given through a fine rose, to settle the soil about them; after which they may be placed in the situations where they are to strike, and be closely covered by glasses from the air until they have begun to grow, when they may receive a little air. Water must be administered with caution. When they have struck root, pot them off into small pots filled with light sandy loam and leaf-mould, replace them in the frame until they have begun to grow, then gradually expose them to a more gentle temperature, and finally remove them to the stove or greenhouse.—*A Practical Cultivator.*

ON WIREWORM.—To destroy this pest most effectually:—Towards the end of last year, when my Carnations and other plants had all been removed from my flower-beds, and previous to the latter being turned up for exposure to the winter frosts, I took sulphuric acid, in the proportion of one gallon to twenty of water, and applied the mixture plentifully to the soil. In two days I again repeated the operation, having previously turned up the soil, and seen that it had been well pulverized. After the lapse of ten or fourteen days I gave a plentiful application of powdered lime, and shortly after turned the soil up in ridges as usual. The result has been that it is now a rare thing to see a wireworm where previously I had often killed a hundred in half an hour, and where my plants were eaten up in a wholesale manner. Let any one collect a number of these most destructive pests and put them among soil in a box, and then apply the above mixture. Let him look for them next morning and communicate the result; or, indeed, in half an hour after. This can be used on a large scale as well as on small flower-beds, or soil for pot culture.—*An Ardent Florist.*

ON THE FINE BLUE DWARF GENTIAN.—Noticing in a late number the excellent remarks on cultivating this lovely blooming plant, I beg to say that I pursued the following method with great success. Last season I divided my plants the *first week in July*, but not into very small patches, and replanted two beds into a rich, sandy, loamy soil. I shaded them for several days; they soon struck fresh roots, were finely established before winter, endured that without injury, and bloomed vigorously and profusely this spring. To divide and replant at the season mentioned I am persuaded is the proper time, and not in autumn as is generally done, or in early spring as done by some. My double Daisies I treated the same, and they succeeded admirably.—*Clericus.*

ON THE MAGNOLIA.—I have two Magnolias which have been in my possession fourteen years, and grown against a south-east wall, but which have not bloomed. Four years back I removed them, in order to induce them to flower; but although they have grown well since, there are no signs of my object being realized. If some reader of the CABINET would favour me with particulars to adopt so as to obtain a bloom, I should esteem it a great kindness.—*A Beginner.*

DISTRIBUTION OF ISLANDS IN A LAKE.—The distribution of islands in a lake or pond requires some judgment; they will always appear more natural when sufficiently near the shore, on either side, to maintain in appearance some connection with it. Although islands do sometimes occur near the middle of natural lakes, yet the effect is by no means good, as it not only breaks and distracts the effect of the whole expanse by dividing it into two distinct parts, but it always indicates a shallowness or want of depth where the water should be deepest. There are two situations where it is universally admitted that islands may be happily introduced. These are at the inlet and the exit of the body of water. In many cases, where the stream which supplies the lake is not remarkable for size, and will add nothing to the appearance of the whole view from the usual points of sight, it may be concealed by an island or small group of islands, placed at some little distance in front of it. The head or dam of a lake, too, is often so formal and abrupt, that it is difficult to make it appear natural and in good keeping with the rest of the margin. The introduction of an island or two, placed near the main shore on either side, and projecting as far as possible before the dam, will greatly diminish this

disagreeable formality, particularly if well clothed with a rich tuft of shrubs and overhanging bushes. Except in these two instances, islands should be generally placed *opposite the salient points* of the banks, or near those places where small breaks or promontories run out into the water. In such situations they will increase the irregularity of the outline, and lend it additional spirit and animation. Should they, on the other hand, be seated in or near the marginal curves and indentations, they will only serve to clog up the recesses; and, while their own figures are lost in these little bays, where they are hidden, by lessening the already existing irregularities they will render the whole outline tame and spiritless.—*Downing's Landscape Gardening.*

FLORAL OPERATIONS FOR SEPTEMBER.

FLOWER GARDEN.—Now sow seeds of annuals, as *Clarkia*, *Collinsia*, etc., in small pots, well drained, and keep them in a cool frame, or other suitable place during winter; then turn the plants out, entire (or split the balls), into the open borders, in March and April, and they will soon be in bloom, and ornament the garden at an early period. Seeds of many kinds *now sown in the open border* generally survive the winter, and bloom vigorously early the next season. *Carnations*: the layers should be taken off, severing them *at a joint* as near the root as possible. Only a few of the bottom leaves should be trimmed off, to admit the compost to settle closely round the stem, and that no leaves may rot inside the soil and be likely to damage the main stem. The compost in which to pot them must not be rich, or the plants will be likely to grow too vigorous, and become what florists term too gross. Equal portions of year-old turfy loam and leaf-mould, with a small proportion of sand mixed therein, is rich enough, and of a dryish texture, and the plants keep healthy in it if otherwise duly attended to. In potting, place two layers in each pot. Put them in a cool frame for about ten days, keeping the lights closed, and shaded from mid-day sun; this contributes to an immediate striking root afresh; afterwards they may be fully exposed in a sheltered spot, having a thick floor of coal-ashes or boards to place the pots upon, in order to prevent worms entering. *Pinks*: beds of them may still be made, and the earlier the more successful; dig into the bed four inches in thickness of old manure; do it a week or so before planting, and plant as early in the month as you can. *Pansies*: beds of them should be made for next spring bloom. Pot some of all the best kinds in small pots, to be placed in a cool frame during winter. If the sowing of the seeds of biennials, as *Scabious*, *Canterbury Bell*, *Brompton* and *Queen Stocks*, etc., has been neglected, they should be attended to as early as possible. *Verbenas*: runners should be potted in small pots, a third filled with potsherds, and the rest with good loamy soil, placing them in a close cool frame for ten days, shading from mid-day sun; after which gradually expose them to open air. Attention to them should be *immediate*. *Bulbs*, as *Hyacinths*, etc., are now to be had, and the sooner they are potted, the more vigorous will they bloom. *Chinese Primroses* should be encouraged for winter blooming. If mildew appears on any plants, dust them with sulphur immediately. *Camellias* may be grafted; the operation may be performed with the greatest success by pursuing the method the French call "*graffe en placage*," which is merely inserting that portion of wood that includes a bud and leaf, cut longitudinally, into a corresponding cleft in the stock. The grafted subjects should be plunged in bottom heat, and kept covered for at least a month. *Roses* may still be budded. Nail to the wall young shoots of *Banksian Roses*. Cut clean away those *not* wanted. Prepare beds of *Sweet Violets*. *Roses* for forcing too.

GREENHOUSE, ETC.—Cuttings of nearly all plants may yet be successfully struck; but the earlier they are put in the better. Towards the end of the month take in the tenderer greenhouse plants; but the house should be whitewashed, etc., previously, if required. Repot *Chrysanthemums*, if the pots they are in be full of roots; give manure-water once a week. *Cinerarias*: pot off singly the offsets, also seedlings. Seed of *alceolaria* may still be sown, but as early as possible. Cuttings of bedding plants should be put in directly. Pot off singly rooted cuttings of *Pelargoniums*, etc. Cuttings of *Tea Roses*, *China*, *Bourbon*, etc., soon strike root at this period.

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1 CHATOGASTRA LINDERIANA.
2 HELIANTHEMUM TUBIFRARIA

The Floricultural Cabinet.

OCTOBER, 1855.

ILLUSTRATION.

I. CHÆTOGAстра LINDENIANA.

Nat. Ord. MELASTOMACEÆ.

THE vast and brilliant family of Melastomads abound on the mountains of South America, particularly in Columbia; many splendid kinds have been introduced into our gardens, and flowering specimens of others equally fine have been received, but the one we now figure, we are told, stands unrivalled. It was first discovered by M. J. Linden (formerly Consul at New Granada, now Director of the Royal Zoological Gardens at Brussels), upon the summit of Monserrat. Subsequently it was found by M. Schlim, in the province of Pamplona, in New Granada, and from thence has been received by M. Linden, in whose establishment at Brussels, plants of it have bloomed in the stove. It forms a bushy shrub from two to three feet high, grows freely, and blooms profusely, producing a magnificent effect. It merits a place in every stove or warm greenhouse.

II. HELIANTHEMUM TUBERARIA. *Nat. Ord.* CISTACEÆ.

A hardy perennial plant; a native of the south of France, Italy, and Spain; grows freely, and blooms profusely. It is the largest flowered of all the dwarf *Cistuses*. The flowering stems rise to a foot high, terminating in panicles of from six to ten blossoms in each, which very much resemble yellow roses. It begins to flower in July, and continues to bloom in long succession. It is a charming plant for either a rockwork, patches in borders, or, grown in rather poor soil, forms a beautiful edging for a bed of taller plants.

BEDDING OUT SCARLET AND OTHER GERANIUMS IN POTS.

BY F. E., COUNTY OF DURHAM.

HAVING found this year such a decided advantage in bedding out

Geraniums in pots (particularly the scarlet), to turning them out in the ground without, I wish to make it known, feeling sure it will be generally adopted, if once tried. It was suggested to me last year by a most successful amateur, who is ever ready to communicate his experience for the advantage of others.

In damp situations, and where there is not much sun, the scarlet *Geraniums* are apt to go to coarse leaf, losing the distinctive character of their respective foliage, and the blooms are few and small. We have found, by retaining the plants of one year's growth and the early spring cuttings in separate *pots*, they are saved the check which disturbance of the roots when in a growing state invariably occasions; their progress is not arrested; they flower sooner, larger, and more abundantly than by the old plan.

The Commander-in-Chief, Cottage Maid, etc., retain their distinctive variety of foliage in great perfection. Another great advantage is, they are so much sooner housed on any sudden change of the weather, and after that can be attended to at leisure; are also saved the second check which indiscriminate potting in autumn occasions, often leaving the plants sickly through the winter.

The convenience of getting them housed in less time, on the occurrence of sudden frost, was one great object sought for in this experiment, my friend being his own *greenhouse gardener*; but he found the greatest improvement both in bloom and foliage on these plants, and it is quite as useful where more hands are kept, because that always supposes a larger number of plants required.

My oldest larger plants are seldom kept longer than the second year. The young plants, being large enough for all bedding purposes, are more bushy, and more manageable in winter.

COLLECTING AND DRYING SPECIMENS OF PLANTS.

BY A FOREIGN BOTANICAL COLLECTOR.

OBSERVING, in a recent Number of your Magazine, that information is requested by a correspondent on a successful mode of collecting and drying specimens, the following is a method I have adopted most extensively, with very satisfactory results. In selecting specimens for drying, care must be taken that they exhibit the usual character of the species; no imperfect or monstrous shoot should be made use of. If the leaves of different parts of the species vary, as is often the case in herbaceous plants, examples of both should be preserved. The twig should not be more woody than is unavoidable, because of its not lying compactly in the herbarium. If the flower grow from a very large woody part of the trunk, as is often the case, as in some *Malpighias*, *Cynometra*, etc., then they should be preserved with a piece of the bark only adhering to them. It is also very important that ripe fruit should accompany the specimen. When the fruit is small,

or thin, or capable of compression without injury, a second dried specimen may be added to that exhibiting the flowers; but when it is large and woody, it must be preserved separately. Next to a judicious selection of specimens, it is important to dry them in the best manner. For this purpose various methods have been proposed; some of the simplest and most practical may be mentioned. If you are in a country where there is much sun heat, it is an excellent plan to place the specimen between the leaves of a sheet of paper, and pour as much dry sand or earth over it as will press every part flat; leave it in the full sunshine, and it will generally dry in a few hours. But in travelling, when conveniences of this kind cannot be had, and in wild uninhabited regions, it is better to have two or more pasteboards of the size of the paper in which your specimens are dried, and some stout cord or leather straps. Having gathered specimens until you are apprehensive of their shrivelling, fill each sheet of paper with as many as it will contain; and having thus formed a good stout bundle, place it between the pasteboards, and compress it with your cord or straps. In the evening, or at the first convenient opportunity, unstrap the package, take a fresh sheet of paper, and make it very dry and hot before the fire; into this sheet so heated, transfer the specimens in the first of the papers in your package; then dry that sheet, and shift into it the specimens lying in the second sheet, and so go on till all your specimens are shifted; then strap up the package anew, and repeat the operation at every convenient opportunity till the plants are dry. They should then be transferred to fresh paper, tied up rather loosely, and laid by. Should the botanist be stationary, he may dry his paper in the sun; if the number of specimens for preparation is inconsiderable, put them between cushions, in a press resembling a napkin press, laying it in the sun, or before a hot fire. It is extremely important that specimens should be dried quickly, otherwise they are apt to become mouldy and rotten, or black, and to fall in pieces. Notwithstanding all the precautions that can be taken, some plants, such as Orchideæ, will fall in pieces in drying; when this is the case, the fragments are to be carefully preserved, in order to be put together when the specimen is finally glued down. In many cases, particularly those of Coniferæ, Ericæ, etc., the leaves may be prevented falling off by plunging the specimen, when newly gathered, for a minute into *boiling* water. The great object in drying a specimen is to preserve its colour, if possible, which is not often the case, and not to press it so flat as to crush any of the parts, because that renders it impossible subsequently to analyse them. When specimens have been thoroughly dried, they should be fastened by strong glue, not gum, nor paste, to half a sheet of good stout white paper; the place where they were found, or the person from whom they were obtained, should be written at the foot of each specimen, and the name at the lower right-hand corner. If any of the flowers or fruits, or seeds, be loose, they should be put into small paper cases, which may be glued in some convenient place

to the paper. These cases are extremely useful; and fragments so preserved, being well adapted for subsequent analysis, will often prevent the specimen itself from being pulled in pieces. The best size for the paper appears, by experience, to be $10\frac{1}{2}$ inches by $16\frac{1}{2}$. Linnæus used a size resembling our foolscap, but it is much too small; and a few employ paper $11\frac{1}{2}$ inches by $18\frac{1}{2}$, but that is larger than is necessary, and much too expensive. In analysing dried specimens, the flowers or fruits should always be softened in boiling water; this renders all the parts pliable, and often restores them to their original position. In arranging specimens when thus prepared, every species of the same genus should be put into a wrapper, formed of a whole sheet of paper, and marked at the lower left corner with the name of the genus. The genera should then be put together, according to their natural orders. To preserve plants against the depredations of insects, by which, especially the little *Anobium castaneum*, they are apt to be much infested, it has been recommended to wash each specimen with a solution of corrosive sublimate, in camphorated spirits of wine; but, independently of this being a doubtful mode of preservation, it is expensive, and in large collections extremely troublesome. I have found that suspending little open paper bags filled with camphor, in the inside of the doors of my cabinets, is a far more simple and a most effectual protection. It is true that camphor will not drive away the larvæ that may be carried into the herbarium in fresh specimens; but the moment they become perfect insects, they quit the cases without leaving any eggs behind them.

TREATMENT OF SOLANUM JASMINOIDES.

BY MR. WALTER SYKES, GARDENER AT HOPE HOUSE,
NEAR MANCHESTER.

CLIMBING shrubs comprise, for the most part, some of the most elegant forms of vegetation, and present claims to regard of which few are unconscious. As they are far from being cultivated in England to the extent they merit, I am induced to bring the above-named handsome flowering evergreen plant to the particular notice of the readers hereof.

Among the species of *Solanum*, there are scarcely any now grown which make the slightest approach to a climbing habit, and a still less number that exhibit the gracefulness of the one here brought forward. Being likewise an evergreen, it is rendered doubly valuable.

I have been unable to procure any certain information relative to its native country, or introduction to Britain. But I obtained a plant of it, from the Glasgow Botanic Garden, three years since, and was told it came from South America. The first time I saw its very

interesting flowers was at the Royal Gardens at Kew, in September. It was there kept in a greenhouse, planted in a pot, and trained round a small circular trellis. The blossoms were borne liberally in *copious panicle clusters*, each having from eight to twelve opened at the same time, and diffusing a delightful fragrance; they are waxy white, with a bright yellow centre, each flower three parts of an inch across, and somewhat like (in clusters) the *Hoya carnosæ*.

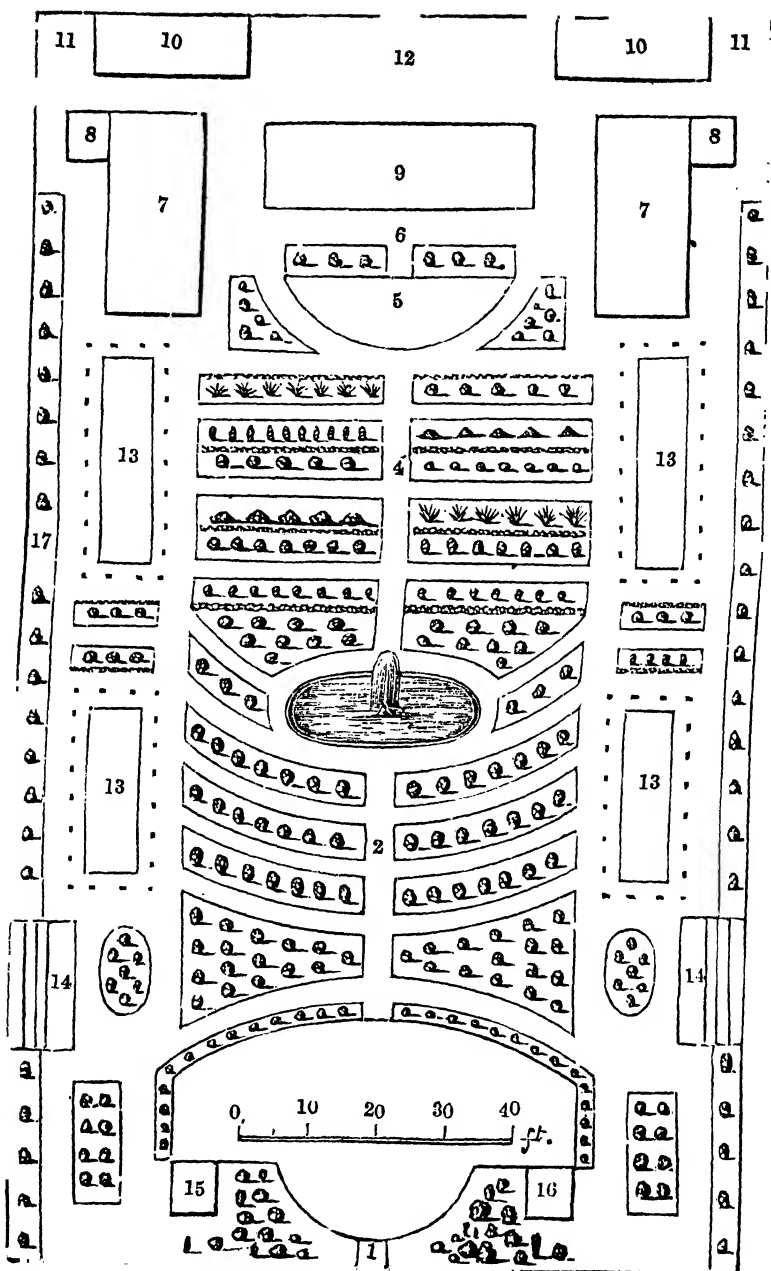
After that period I observed it continued blooming during the autumn; it also created a very pretty feature in the greenhouse throughout winter. In the summer, it commenced flowering in May, and in yet greater profusion—the plant being kept in its old position—and bloomed up to December. In March following I obtained a strong plant from Glasgow, and planted it in an open bed (out-door) appropriated to climbing roses and similar objects, and fastened it to an erect pole. It there flowered very freely for several months, continuing in undiminished beauty to the end of November. The frost then destroyed the flowers, but the evergreen foliage remained uninjured; and in the ensuing spring the plant pushed anew, and every lateral shoot terminated in a cluster of flowers. Another plant I trained to a wall, and it flourishes amazingly, covering at this time the wall, ten feet high and thirty feet wide. The greenness of the young shoots, and the size, form, and surface of the leaves, give it the aspect of some species of *Jasminum*, on which account the specific name has been given. It thrives well in a loamy soil, with a trifling admixture of heath-mould and sand, and does not need a very large pot. It can be trained spirally round any small wooden trellis or pillar, either in the greenhouse or out-door, and will produce a long succession of its delicate flowers through the summer, autumn, and winter months. It does not require much water through the winter, only to be kept just moist.

It is entitled to a place in every greenhouse or flower garden.

REMARKS ON THE CALYSTEGIA PUBESCENS, OR DOUBLE-FLOWERED BINDWEED.

BY F. E., COUNTY OF DURHAM.

THIS pretty flowering plant has not obtained in the CABINET the notice I think it deserves; it is a most useful pretty climber, planted at the foot of roses against a wall, as, when they have done blooming, the foliage is generally shabby, and the stems bare. The *Calystegia* covers them with its little blush, rose-like, double flowers and bright green leaves, and blooms till the frost destroys the flowers. It does best in a dry and sunny situation; in the reverse, it will produce fewer, smaller, and paler flowers. It is very pretty mixed with the *Tropæolum Canariensis*, whose luxuriant fantastic wreaths continue for many months to conceal and adorn the earlier plants, which are by the time they flower out of bloom and condition.



DESIGN FOR A FLOWER GARDEN.

BY T. RUTGER, ESQ.

THE accompanying design may serve to throw out a few hints for the formation of a FLORIST'S GARDEN, which will be easily explained by a reference to the numbers as shown on the plan, viz.: 1. Show-house for plants. 2. Dahlia-ground. 3. Pond, with a fountain. 4. Bed, for choicé flowers, parted by dwarf yew hedges, or some other material. 5. Plant-house. 6. Stock-hole. 7. Span-roofed houses, built north and south, for plants. 8. Stock-holes. 9. Platform for placing plants out in the summer. 10. Sheds for potting, etc. 11. Rubbish-holes. 12. Compost-ground. 13. Sites for awning over, for Tulips, Carnations, etc. 14. Auricula-stages. 15. Stock-hole. 16. Tool-house. 17. Narrow borders against the walls, for creepers. The clumps with no numbers given may be furnished with flowers, as taste may direct. It will be perceived that the principal entrance to the garden is through the show-house, and at the opposite extremity there is a way open, to take in compost, and to wheel out rubbish. In laying out a garden of this description, other appendages than those given in the design may be added, if found to be necessary, by enlarging the ground.

IMPREGNATING AND RAISING CARNATIONS AND PINKS FROM SEED.

BY FLORISTA.

I SHOULD not have troubled your readers with the following remarks, had not an article on raising seedling Carnations (recently printed in a contemporary Magazine) been greatly calculated to mislead the inexperienced florist. Persons accustomed to raise seedlings never think of saving the seed from single flowers. I should say that from such seed there would not be a moderately good flower in *ten thousand*. The only fault with at least two-thirds of our present varieties is, that they are *too thin* of petals, and will not form a good crown, which is an indispensable property in the criteria of a fine Carnation and Pink. I ask, what can look more meagre than the half-double flowers?

For the information of your readers, I will detail my mode of proceeding. I select such flowers as are *perfectly double*. That such flowers may produce seed, it will be necessary to let every bud remain to bloom. When they are fully expanded, and the pistils assume a *glittering icy appearance*, take any one half-expanded bloom, and tear it open, when will be seen the apices (anthers) containing the pollen, or dust; take one of these, and, if not already burst, open it, and draw it along the pistils (thread-like terminating horns) till you see some of the powder adhering to them. If this has been properly done, the bloom will close in two or three hours; and if no alteration takes place, repeat it till it does. In two or three days after impregnation has taken place, cut off all the other buds, and remove the plant to a situation where it will get plenty of sun; keep it well supplied with water, and protect the capsule (closed pod)

from rain, by placing a square piece of thin board or other material upon the stick, just above it; gather the seed when ripe, and *keep it in the pod* in a well-corked phial. It will be also necessary to protect the pod from earwigs, which is best done by winding a little fresh sheep's wool round the stick and stem; they will not attempt to pass over it, as it entangles them.

These directions apply equally as well to Pinks, with the exception that the bloom from which the pollen is to be taken must be opened before it begins to expand, or the apices will all be burst, and the pollen gone.

WHEN TO REPOT THE CAMELLIA.

BY A TWENTY YEARS' PRACTITIONER.

RECENTLY noticing that a correspondent asks for information on this subject, I am induced to supply the following particulars, to meet the Lady's request.

Repotting.—This should be done *every year*, if healthy plants are desired. The best time is when the young shoots have just *completed their growth*, which is indicated by the lower part of them turning brown, and *the embryo blossom buds just seen* at the extremities. At this time as much of the old ball as can be done without damaging the roots must be taken away. The compost must not be in a soddened wet condition when used for potting, as in that state it is liable to be pressed so as to become hard. In filling in the compost, it is advisable to put in indiscriminately a few lumps of chopped turfy loam; this tends to prevent the matting of the roots in any particular part, but allows them more regularly to push forward, by each portion of the soil being kept in an equal degree of moisture, which is an essential in successful culture. After repotting and watering, the plants require to be shaded for a few days, during the middle of the day, when there is hot sun. Those plants intended to bloom as early as the end of October or November should at once be placed in an airy greenhouse, and have the foliage syringed every morning, and in the evening about five o'clock. Where the greenhouse can be closed at that time for a few weeks, it would very materially contribute to the setting of the flower-buds to do so. Such plants as are required for a later blooming season must be kept in the open air, and in a sheltered situation; but if open to mid-day sun, a canvas covering is found to be serviceable, and the foliage retains its vigorous green hue. The best compost is equal parts of strongish turfy loam (chopped, not sifted), peat, and old well-rotted manure, with a sprinkling of bits of charcoal. A liberal drainage is indispensable to success.

A principal feature in management is a proper attention to watering at the root, not only to obtain vigorous-growing plants, but to retain the flower-buds when formed; if this be neglected, or done

carelessly, the consequence is, they will certainly drop off. For a few weeks after repotting, as much water at the roots is not required as when they have pushed afresh, but to promote an early establishment, the syringing over the tops, as before mentioned, is indispensable. When the new roots begin to push freely, then the supply must be freely given, taking care that the *entire ball* of soil is alike moistened, to effect which the surface must be kept even. If this is not done, the soil at the sides will filter down lower than the old portion of the ball of roots, and whilst the latter is kept dry, the exterior tender roots will be soddened, become unhealthy, and decay. Soft water is essentially necessary for use, and occasionally a good watering with liquid manure; this latter is far preferable to mixing manure with the compost at the time of potting. As the plants approach the period of bloom, a gradual increase of water is found necessary, but in every stage avoid *excess*, and *regularity* realizes every desired success; and by bringing plants into heat at successive periods, a blooming season can be extended from the end of October to April. The temperature of a house for early blooming plants is regulated so as to be, during the growing of the shoots, about 50 degrees at night, and a little above 60 by day. The after period of forming the buds till they expand is about 60 by night, and near 70 by day; by this attention in culture and temperature, a fine bloom of plants may be had from early in November, and which may be kept up to May or June.

ON IMPREGNATION OF FLOWERS FOR RAISING SUPERIOR HYBRIDS.

BY A COUNTRY CLERGYMAN.

IF we knew a person anxious for the attainment of some pastime combining dexterous manual management with considerable intellectual exercise, we do not know of one to whom we could more confidently point him than the pursuit of horticulture and floriculture. There is in the cultivation of flowers a charm for the most vacant mind; they also open up a field of study for the man of most austere thought; here, also, the most refined mind, alive to loveliness in every form, and beauty in every phase, finds ample scope for admiration: true, indeed, "Solomon in all his glory was not arrayed like one of these."

One of the greatest pleasures attendant on the pursuit of this art consists in raising new and improved varieties of flowers; for, however beautiful flowers naturally are, there is no denying that they are doubly so when they come from the hands of the skilful hybridizer. In doing this, we are only taking advantage of the known laws that govern vegetable reproduction; it is, on a small scale, art dictating to nature, and to that, in a great measure, we owe our many improved

varieties of fruits and flowers. The field of experiment is boundless as the extent of nature itself. Thousands of flowers that our fathers looked upon as the pride and glory of their gardens, we now look upon as almost worthless as plants of ornament. Were some old amateur of half a century ago to have a look at our gardens now, he would be bewildered by the blaze of beauty that would meet his eye; the change is not greater in form than in substance; the style of laying out gardens has advanced, as well as the productions with which they are enriched. For the majority of our most beautiful varieties of flowers we are indebted to the skilful hybridizer; he soon gains a wonderful power over the colour and form of vegetable existence. We shall suppose him admiring some beautiful flower, but, alas! it is too delicate for our surly climate; it comes from some country where frost never congealed its flowing sap, or blighted its opening beauties; still he admires and covets it; he has some of the same family in his garden, hardy fellows, that brave every blast; but they want the beautiful colour and form of their exotic relation. Our amateur is one who has studied the structure and functions of plants, and the laws by which those functions are governed in their operations; he thinks he may transfer the beautiful inflorescence of the exotic to its more hardy relations in the garden. And he does so: art triumphs over all, his skill and forethought are abundantly crowned with success. In thousands of instances has this transfer of inflorescence taken place, to the gratification of every admirer of nature's most lovely productions. The skill of the artist is rapidly changing the face of the floral world; a standard of perfection has been laid before the florist, and all are bent on its attainment. The art, however, is but in its infancy; there is not that precision and certainty in results which we think will yet be attained. However, much has been done; it is an employment full of the most pleasant excitement, and one to which we would invite all amateurs to share in.

As the object of hybridizing is to improve in form and colour, only the most perfect formed of flowers ought to be chosen for this purpose; little advance need be expected, unless that rule be strictly attended to, as flowers that have been artificially improved are very apt to run back to their originals, unless urged on by the same superior attention that has brought them so far as they are. The plants to be operated on must not only be of the best and most perfect kinds, but they must also be in a high state of health, otherwise good seed cannot be obtained. When the flowers of a plant, intended for the seed-plant, are about to open, and just before they expand, the petals must be gently opened, and with a fine pointed scissors cut out all the stamens, taking care not to hurt the stigma. The reason for thus early cutting out the stamens, is to prevent the pollen on them from coming in contact with the stigma, which would defeat any attempts at cross impregnation, by being done in the natural way. The plant to be operated on and the plant

to be operated with must both be in the same state of forwardness as regards their blossom; very soon after the petals are expanded is the proper time to apply the pollen of the one to the stigma of the other. This may be done in various ways; either by bringing the flowers in contact, or by transferring the pollen on the point of a fine camel-hair pencil: for various reasons we prefer the former way, when carefully done. After the operation is performed, which may be done two or three times, to make sure, it is important that no contact with any other flower be permitted, either by flies, bees, or otherwise; to prevent that, we advise a covering of very thin gauze, or other similar material, until the petals have faded, then to be discontinued. The plant must all the while be in such a situation as that light, air, etc., will have free access, and due attention to watering, so as to keep it in full health.

In trying to gain a flower to the garden, it in general holds good that seedlings from crossed flowers assume more of the blossom of the male plant, and in general character and hardiness the features of the mother, or seed-plant, prevail; that is worth recollecting, when endeavours to produce the inflorescence of an exotic to stand our climate is the object of crossing. The above rule will also apply in the case of plants of bad habit, as many fine flowers often turn out. By attention and perseverance, the flowers of a plant of bad habit may be transferred to one of the same family of fine habit, by impregnating the one of fine habit with pollen from the one of bad habit. The exact flower, in form and colour, may not be produced, but a near approach may, and often does turn out, and very frequently something much superior.

Now will be a good time to cross the many varieties of the *Calceolarias*; some of the best shrubby ones may be impregnated with the finest formed and marked of the herbaceous ones, as they are not only more easily kept, but, with good management, make finer specimens, and the herbaceous and shrubby ones cross quite freely. *Fuchsias* may now be done also, operating with those having flowers of the largest size, of very clear distinct colours, and marked contrast. We would recommend the amateur to cross many of his perennials of distinct and opposite colours, such as *Phloxes*, *Mimulus*, *Pentstemons*, etc.; we need not mention *Geraniums*, *Roses*, *Bouvardias*, etc.

HEATING A GREENHOUSE, ETC., WITH GAS.

BY JOHN BENSON, ESQ., OF LIVERPOOL.

IN your Magazine for 1852 (page 282) and 1853 (pages 85 and 95) are observations upon warming conservatories, greenhouses, and pit-frames, by means of pipes or flues being heated with gas. I tried the system recommended with success; but I found I had to contend with an escape, more or less, of gas into the houses, by which the air

became contaminated in some degree, to the injury of the plants. I could not observe any fissure anywhere for the escape of the gas, and no doubt it issued through the porous materials of the pipes or flues. My houses were, however, well warmed by means of the heated gas, and during the severest part of the winter of 1852-53 the thermometer could be kept up to 65 degrees through the night.

Subsequently I noticed some descriptive particulars in the *Magazine* for 1854, that by means of hot water conveyed in metal pipes of the usual kind, which water had been heated with gas, the method had been tried and answered perfectly. I therefore had two plant-houses and two pit-frames fitted up in the following manner. It is necessary for me to observe that my residence is near to a public road, along which gas-pipes are laid, and thus advantageously circumstanced. I had a suitable-sized boiler fixed in the shed behind the houses (it was in the form of what is called a saddle boiler, broad and shallow), underneath which I had the gas brought, and it was applied to heat the boiler by four rings of jets fixed near to each corner of it, each ring having six jets; a suitable opening was left to light the jets, a pipe fixed through the wall to take away the extra fume of the gas, and a supply of water for the boiler was provided. The pipes I used are of three-inch bore; I have them fixed along the fronts, flow and return, and my houses being double-roofed, with stage up the middle, I had a pipe also under the centre of the stage extending its length. In the two pit-frames I had only a flow and return pipe along the front. The gas was lighted during the afternoon or evening, as requisite, so that the water was sufficiently heated to warm the houses properly at the early part of the night. The gas was usually put out, in the severest part of winter, about nine o'clock, and the houses kept warm till morning; but, if necessary, the gas may be allowed to burn all night without the least danger. The cost of heating is very trifling, and the expense of fitting up is comparatively small. The air of the house is perfectly sweet, and in it the plants flourish admirably.

The advantages of heating in this mode are several. Coals are not required, consequently there is not any smoke, which is a matter of importance where the plant structure is situated near the dwelling-house; and the cost of the gas is not one quarter that of coals. There are not any ashes to produce the nuisance of dust, which, falling upon plants, is always injurious to them. It is ready of application; if a sudden frost or cold wind set in, the gas can immediately be turned on and lighted by any person at hand. The last winter was a severe one, but my houses and pits were perfectly warmed. Each structure is thirty feet long. I have tested the application of gas with hot-water piping, and proved its superior advantages, in economy, cleanliness, ease of adaptation, and certainty and safety in operation. It is particularly valuable for heating plant structures which are attached to the dwelling-house, or close to the flower garden; smoke always being a nuisance, by blackening the flowers and foliage, and closing up their pores.

REMARKS ON THE AURICULA BLOOM OF 1855.

BY W. BAILDON.

THE Auricula, with its beautifully powdered flowers, is one of the rarest of Flora's gems. The rich and varied colours which it possesses, especially in the classes called selfs and alpines, added to its exquisite fragrance, render it one of the most delightful and fascinating of florists' flowers.

In the spring of 1855, one of the coldest on record, we have had a most unfavourable season for blooming the Auricula. The ungenial weather which prevailed almost unremittingly up to the period of the bloom was against the development of fine flowers. They were retarded also at least three weeks beyond their usual time of flowering; but, notwithstanding all these drawbacks, there were some magnificent flowers, which were really worth noticing. First, in green edges was the old favourite, Leigh's *Colonel Taylor*, which, in the estimation of many, stands at the head of the class. It has, however, two defects; the pips are too starry or angular, and the paste is rather thin, or deficient in density. I have seen it on one or two occasions without either of these faults. It was very fine, and no collection should be without it. Page's *Champion* was also in magnificent character. It has a rich violet ground-colour, and a bright green edge, and I should say is the best flower in this class. The pips are round and flat, the tube, however, is not quite round. Litton's *Imperator* and Booth's *Freedom*, usually so fine with us, were this year quite the reverse. I did not see a good bloom of either. I was much pleased with Barlow's *King*, an old variety. It has a fine dense paste, quite round dark ground, and good green edge. Then there was Howard's *Lord Nelson*, another old variety, also well done. A dark green edge, black ground-colour, and fine yellow tube; the paste, however, is rather coarse. Beeston's *Apollo* is much in the way of this variety, and I think no improvement; the tube is too pale, and the plant is apt to throw too many offsets, so that it is difficult to keep a fine plant. Clegg's *Lady Blucher* is a light green edge, with fine paste, and rich yellow tube; the pips are, however, rather dentated. A nice variety is Lightbody's *Lord Lynedoch*. The pips are beautifully round and flat, with fine dense paste and dark ground-colour. Lightbody's *Sir J. Moore* was in no character at all, nearly approaching a white edge, and is, I fear, a sportive variety. Another first-rate sort is Hudson's *Apollo*, much in the style of *Colonel Taylor*, but with rounder pips. Hepworth's *Robin Hood* was very fine and distinct; the tube is rather too pale. Falkner's *Ne plus ultra*, a very old sort, was regular and neat, and is yet a match for many new ones. Ashton's *Prince of Wales* was also very fine; it has a very rich yellow tube, dense paste, and fine green edge; the ground dark, but rather narrow.

In grey edges, there were some capital flowers. At the head of the class stands Cheetham's *Lancashire Hero*, but unfortunately it is a late variety. I had it in good bloom till June 10th. Kenyon's *Ringleader*, however, is its equal, when it can be caught in fine character; but it unfortunately has one great fault—it is so difficult to get it expanded. It requires very fine and warm weather. These two varieties, in proper character, are very near approaches to perfection. Another first-class flower is Sykes's *Complete*, and, as a variety to depend upon for exhibition, superior to the two varieties previously mentioned. It is very neat; its only fault is the tube being rather green. Fletcher's *Mary Ann* is always fine; it has a very fine paste, and the edge, in my estimation, the most distinct grey in the whole class. If *Lancashire Hero* possessed the fine paste and distinct edge of this variety, nothing more could be desired. Fletcher's *Ne plus ultra* is a very large variety, and was very fine. It is rather unsteady, but when caught, it is a magnificent flower; it has a fine grey edge and dark ground-colour, but the pips are rather dentated. Lightbody's *Sir Charles Napier* is a new variety, and has been described as a beat on *Ne plus ultra*. It is, however, in my opinion, greatly inferior to it; the paste is angular, and the pips very starry, or pointed. It scarcely belongs to any class, being too white for a grey edge, and too grey for a white edge, which is another great drawback. Another new variety of Lightbody's, *James Dickson*, is a far superior flower to the last, and will be a first-rate sort. It has the finest paste and the most distinct black ground-colour of any variety I know, with a fine tube and good edge; the paste is quite round, but the pips rather starry. Dickson's *Lady Jane Grey* was also very distinct and fine, possessing great substance and good properties. There were many others in this class, viz. *Conqueror of Europe*, Kent's *Queen Victoria*, Grime's *Privateer*, all worthy of extended cultivation. *Prince of Wales*, described as a green edge, was also fine as a grey edge, which I think is its best character. It is good in either style. Oliver's *Lovely Ann* appears to be a favourite in some localities. I see, at one exhibition, it has had a silver medal awarded to it. It is not much admired here. It is a coarse flower; in its general character neither green nor grey, but what would be termed by many a mongrel. It is, however, a very robust and hardy variety, and I should presume that the honours awarded were for specimens of plants more than for any fine qualities in the flowers.

The white-edged class is a favourite with me, and there are some magnificent flowers in it. As a first-class variety, I may mention Hepworth's *True Briton*. It is a flower of great substance, and requires fine sunny weather to expand. The pips are large and round, the ground a dense black, with fine edge and paste. Cheetham's *Countess of Wilton* has been finer this season than I ever remember to have seen it. The pips are remarkably round and flat, the ground dark and very regular, with fine tube and paste.

always be admired for its colour. I long to see a self possessing the fine properties of *Othello*, with the rich colour of *Lord Leigh*. Gorton's *Stadtholder* is a bright canary yellow, and is the only yellow self worth cultivation. Other varieties worthy of note are *Blue Bonnet*, *Lord Primate*, *Royal Purple*, *Nonsuch*, etc.

In alpinæ there has been no improvement for many years. *Fair Rosamond*, shaded crimson, is still the best; *Conspicua*, shaded blue; *Queen Victoria*, nearly black, shaded with dark scarlet, and a few others. These are not grown in many collections, from a belief that it is impossible to raise good edged Auriculas where they are grown; but I have no doubt that, with care and attention to hybridizing, this difficulty may be overcome.

The Auricula has not improved so rapidly as the Pansy, the Picotee, or the Dahlia of late years. Some of the new varieties are inferior to many which are half a century old. Indeed, if we take the whole of the classes throughout, we shall find that some of the oldest flowers are still the best. This arises, in my opinion, from want of proper care in taking seed, and of hybridization. Nearly all the edged varieties have dark ground-colours, yet I have no doubt that, by means of hybridization, the rich blue of *Metropolitan*, the bright yellow of *Stadtholder*, or the scarlet-crimson of *Lord Leigh*, might be infused into them, and a variety of flowers produced which would excel in beauty any we now possess. The field for experiment is indeed wide, the shades of colour the flower possesses appearing to be unlimited. Though it is the oldest of florists' flowers, it may as yet be said to be only in its infancy, and no other class of flowers known to me will better reward the care and attention bestowed upon its improvement than this really magnificent tribe. (*Midland Florist*.)

REVIEWS.

The Gardening Book of Annuals. Comprising Concise but Accurate Descriptions of nearly 300 Species; with full Instructions for their Cultivation, etc. By WILLIAM THOMPSON. London: Simpkin, Marshall, and Co.

WE highly approve of this new publication. It is just such a book as was wanted, and is most admirably adapted to supply the previous deficiency. The descriptions are clear, sufficiently ample, have been compiled with much care, and are calculated to be very useful to persons desirous of making selections of plants, as to height, size, habit, colours of flowers, period of blooming, etc. We strongly recommend it to all our readers. The following extract will show the method of its descriptive details.

"*CALLIOPSIS TINCTORIA* [from *kalos*, beautiful, and *opsis*, an eye or centre]. Syns. *C. bicolor*; *Coreopsis tinctoria*. Dyer's Calliopsis. *Composites*.—One of our most showy hardy annuals. Height 3 ft.,

much branched and spreading. *Lvs.* opposite, radical ones pinnate or bipinnate, the segments entire; upper ones, the segments cleft into linear lobes. *Fl.-heads* terminal, $1\frac{1}{2}$ in. across; ray florets broad, 3-toothed, orange yellow at tip, rich brown at base; disk brown, of tubular florets. There are many varieties of this species, differing in the proportion of brown to yellow; in some the entire flower is of that tint; in another, the *marmorata* of the seed lists, the two colours are curiously intermingled. Autumn-sown or self-sown plants produce the finest flowers. Blooms all summer. Rich soil. Native of Arkansas."

The Town Garden. A Manual for the Management of City and Suburban Gardens. By SHIRLEY HIBBERD. London: Groombridge and Sons, Paternoster Row.

THIS neat little book contains a mass of information and instruction admirably adapted to benefit persons either having or about to form, gardens in such localities. It has our hearty commendation, being both excellent and cheap.

NOTES ON NEW AND SELECT PLANTS.

118. *BILLBERGIA VIRIDIFLORA* (*Green-flowered*). Nat. Ord. *Bromeliaceæ*.—A *green-flowered* Billbergia is highly interesting. The lower portion of the flower-stalk and its leaf-like bracts are of a bright carmine colour; the flowers, tubular-shaped, are produced in a large terminal panicle; each blossom green, three inches long. It merits a place in the stove, and will contrast very strikingly with the blues and scarlets of the other species. (*Fig. in Flor. des Serres*, 1019.) It is in the collection of M. Van Houtte, at Gand.

119. *CONVOLVULUS ALTHEOIDES*, var. *argyreus*. Nat. Ord. *Convolvulaceæ*.—It is a *dwarf bushy-like* plant. The floral stems of the plant (figured in *Flor. des Serres*) are about six inches long, each terminating with a flower of a bright pink, with a white throat, and two inches across. It blooms in profusion, and such humble bushy-like plants, with numerous large flowers, are very strikingly handsome. It merits a place in every greenhouse or pit frame. It will flourish in the open ground in summer, but will require winter protection in-doors. (*Fig. in Flor. des Serres*, 1021.) It is grown in M. Van Houtte's establishment.

120. *GILIA CORONOPIFOLIA*, var. *carnea-lutea*. Nat. Ord. *Polemoniaceæ*.—This handsome flowering variety is a seedling from *Ipomopsis elegans*, which it resembles, in its narrow fine foliage and growth of plant. The flowers are produced in a *large* terminal branchy pyramidal head, containing almost a hundred blossoms on each head. Each flower is three parts of an inch across, and the tube about as long. It is of a pretty nankeen-yellow colour, with a bright carmine rim around the mouth of the tube, which extends beyond in similar-

coloured rayed lines. It is exceedingly handsome, and worth a place in every greenhouse, or open bed in summer. It blooms from June to September, or later, by treatment accordingly. It requires a similar mode of treatment to the *Ipomopsis elegans*. See an article upon it in a previous volume of the FLORICULTURAL CABINET. (*Fig in Flor. des Serres*, 1022.) It may be obtained of M. Van. Houtte.

121. *ABIES KÆMPFERII*.—A new and charming *Conifer*, which Messrs. Standish and Noble have obtained from China, and who state, "it is *deciduous*, and somewhat resembles the Larch, but the foliage is very much handsomer, and the disposition of the branches quite distinct. The leaves are three to four inches long, of a lively green. It is a superlatively hardy plant, also exceedingly beautiful." In China, it is called the *Golden Pine*, from the rich yellow of its *leaves* and *cones* in autumn. It grows on elevated or mountainous districts, to a great height. Mr. Fortune measured one tree that was eight feet in girth, and 130 feet high. The trunk is straight.

122. *BERBERIS BEALII*, *B. JAPONICA*, *B. INTERMEDIA*.—These have stood through the past winter wholly unharmed, without any protection. Messrs. Standish and Co. state, "it is not too much to say that the above are the finest evergreen shrubs in cultivation." Their leaves are from fifteen to eighteen inches long, composed of several leaflets, and a terminal one; this latter is often five inches long by three broad, and the side leaflets are proportionately large.

123. *CRYPTOMERIA JAPONICA VIRIDUS*.—This plant is entirely free from the objection which in some situations the *C. japonica* is liable to, viz., its foliage becoming brown in winter. The *C. viridus* during the past winter retained its bright lively green colour. It is a charming tree.

124. *DESFONTANIA SPINOSA*.—This beautiful evergreen has much the appearance of a *Holly*. It is quite *hardy*; the foliage a deep green, and very ornamental. It bears an abundance of tube-shaped drooping flowers, each about two inches long, red outside and yellow within. A most charming plant.

125. *EMBOTHELIUM FERRUGINEUM* (Syn. *Somatia*). *EMBOTHRUM LANCEOLATUM*.—The foliage of the former is peculiarly graceful, resembling very closely the finely cut fronds of a large Fern; and of the latter, *E. lanceolatum*, too much cannot be said. It forms a compact shrub, with large lance-shaped leaves, and long spikes of rich crimson flowers, which are borne in profusion, and very ornamental. They have borne the rigour of last winter without harm, but they flourish admirably in the conservatory or greenhouse.

126. *EUGENIA UGNI*.—A charming myrtle-like evergreen, bearing very fragrant flowers, which are succeeded by strawberry-flavoured berries; quite hardy, and handsome.

127. *LAURELIA AROMATICA*.—A handsome evergreen, with fleshy leaves, which are very fragrant. It is a native of the mountains of Chili. Quite hardy.

128. *QUADRIA HETEROPHYLLA*.—This interesting tree, which is said to be hardy, produces fruit about the size of a small walnut, with the flavour of the cocoa-nut.

129. *RETINOSPORA ERICOIDES*.—A very pretty *heath-like* CONIFEROUS plant, which is perfectly hardy. It is a valuable acquisition, having stood out at Messrs. Standish and Noble's during last winter without the least injury, remaining as green as it was last October.

The above shrubs and trees are grown in Messrs. Standish and Noble's nursery, whose testimony relative to the plants may be fully relied upon.

130. *PHLOX, QUEEN VICTORIA*.—The plant is of the *decussata* habit, robust, and stiff. The trusses of blossoms are large, each flower about an inch across, blush-white, with a large purple eye, and of exquisite form; blooming from July to the end of the summer.

131. *ROSA VIRIDIFLORA*.—The flowers in form are exactly like the common blush China Rose, and are produced as profusely, in trusses, of from ten to twenty blossoms in each. They are very double, and of a bright green colour. It has a very pretty appearance in the greenhouse, blooming freely during autumn and winter, as well as earlier, if managed properly. It is exceedingly interesting, and may be had cheap.

132. *WILLIAMS'S EVERGREEN CLIMBING ROSE*.—It is a seedling raised from the common hardy climbing *Ayrshire Rose*, fertilized with the *Yellow Tea Rose*. It has the rapid growth and elegant habit of *Ayrshire splendens*, whilst its glossy foliage and long lemon-coloured buds partake of the character of the *Yellow Tea Rose*. The flowers are of a creamy white, deliciously sweet-scented, and produced in long racemes of from twelve to twenty on a single shoot. It is a charming acquisition; quite hardy.

133. *SALVIA ROMERIANA*.—It is of *dwarf habit*, a very free bloomer, excellent for bedding. The flowers are of a rosy carmine colour, and it blooms throughout the summer.

134. *EREMURUS SPECTABILIS*. Nat. Ord. *Asphodelæ*. Syn. *Asphodelus Sibiricus*. A handsome, hardy, herbaceous perennial, a native of Altaic Siberia. The main flowering stem rises from three to four feet high, almost half of which bears a profusion of flowers, forming an ornamental pyramid; each blossom (star-shaped) is an inch across, of a sulphur-yellow, with large, bright, orange-coloured anthers, which produce a beautiful contrast. It is very ornamental during summer, and merits a place in every flower garden. It is in the Royal Gardens at Kew. (*Fig. in Bot. Mag.*, 4870.)

135. *LEPTODACTYLON CALIFORNICUM*. Nat. Ord. *Polemoniaceæ*. Syn. *Gilia Californica*. Mr. William Lobb sent seeds of this very charming plant from San Bernardino, in South California, to Messrs. Veitch. It is a low much-branched shrub, having a copious, small, *heath-like* foliage. The flowers are produced on the short lateral branches which adorn the principal ones, so as to form long racemes of bloom. The tubular portion of the flower is nearly an inch long,

yellow, and the fine divided front, an inch and a half across, of a beautiful rose colour, with a white eye; in appearance much like a large peach blossom or an Oxalis. The branches are clothed with flowers so numerous as almost to conceal the foliage. It blooms in summer, and merits a place in every shrub-border or bed, and being quite hardy, is rendered still more valuable. (*Fig. in Bot. Mag.*, 4872.)

136. *SALVIA CARDUACEA* (*Thistle-leaved*). Nat. Ord. *Labiata*.—In De Candolle's *Prodomus*, Mr. Bentham gives a descriptive list of 407 species of *Salvias*, and the one we now notice is the most distinct and remarkable of that vast number. It is a native of California, discovered about the same time by Mr. Douglas and Dr. Coulter, and now first introduced to our gardens by Messrs. Veitch, who received it from Mr. Lobb. It is perfectly hardy, and merits a place in every garden. The plant is perennial, and the floral stem is from one foot to one and a half high, erect. The leaves are *thistle-like*, spiny, cobwebby, densely woolly beneath. The flowers are produced in large whorls, each a few inches apart, tier above tier up the main stem. Each blossom has a tube as long as the calyx, white; the limb (front of the flower) is gaping, one and a half inch across, and of a pretty lavender-purple colour. (*Fig. in Bot. Mag.*, 4874.)

137. *MEYENIA ERECTA*.—Messrs. Rollison received it in 1854, from Sierra Leone. It was first discovered by Dr. Vogel, in the Niger expedition, and has been described in the "*Niger Flora*" by Sir William Hooker, who states it as the most beautiful plant of the south-west coast of Africa.

MISCELLANEOUS.

NATIONAL CARNATION AND PICOTEE SOCIETY'S EXHIBITION FOR 1855.—This annual treat was held at Oxford, on August 2nd, in the grounds of Magdalene College. The attendance of visitors was numerous, and though the number of flowers shown was less than half of what we have seen at former meetings, yet the excellence of the specimens was far superior to any we ever previously witnessed. The following were the successful flowers.

NURSERYMEN.—*Twelve Carnations*: 1st. Mr. Charles Turner, Slough, with Exit, Lord Rancilffe, Alouzo, Christopher Sly, Omer Pacha, Jacques, Admiral Curzon, Count Pauline, Poor Tom, Model, Julia, and Defiance. 2nd. Mr. John Keynes, Salisbury, with Lord Rancilffe, Squire Trow, Prince Albert, Justice Shallow, Owen Glendower, Sarah Payne, Falconbridge, Antonio, Flora's Garland, Omer Pacha, Rachel, and Admiral Curzon.

Twelve Picotees.—1st. Mr. Chas. Turner, with Mrs. Hobbs, Mrs. Norman, Eugenic, Mrs. Headly, Mrs. Drake, Lizzie, Helen, Finis, Sultana, Lady Grenville, Lord Nelson, and Lamia. 2nd. Mr. John Keynes, with Mrs. Headly, Prince of Wales, Mrs. Kelke, Countess, Lavinia, Queen Victoria (Green), Mrs. Norman, Finis, Mrs. Hoyle, Amy Robsart, Mrs. Barnard, Duke of Devonshire.

AMATEURS.—*Twelve Carnations*: 1st. H. Steward, Esq., York, with Sarah Payne, Lord Rancilffe, Flora's Garland, Falconbridge, Poor Tom, Justice Shallow, Sarah Payne, Lord Rancilffe, British Hero, Black Diamond, unknown, and Squire Trow. 2nd. Mr. Samuel Eyre, Snenton, Notts, with Lord Rancilffe, Falconbridge, Prince Albert (Hale), Earl Spencer, seedling P. F., Lord Milton, King of Scarlets, Poor Tom, Admiral

Curzon, Firebrand, seedling, and Admiral Curzon. 3rd. Mr. R. R. Oswald, Birmingham, with Uncle Tom, Squire Trow, Magnificent, Admiral Curzon, Mr. Peto, Lorenzo, Christopher Sly, Madame Sontag, John of Gaunt, Premier, Jenny Lind, and Queen Victoria (Simpson). 4th. W. Belcher, Esq., Abingdon, with Prince Albert (Hale), Falconbridge, Lord Rancliffe, seedling C. B., Sarah Payne, Admiral Curzon, King John, Prince Albert, Lorenzo, Falconbridge, Firebrand, and seedling. 5th. Mrs. James Taylor, Snenton, Notts., with seedling, Prince Albert (Hale), Falconbridge, Madame Sontag, Splendour, Rev. I. Bramhall, Lord Milton, Lord Rancliffe, Lovely Ann, King of Scarlets, Admiral Curzon, and Lord Byron. 6th. Mr. James Maltby, Oxford, with Poor Tom, Misnomer, Benedict, Earl Grey, Count Pauline, Duchess of Gloucester, Admiral Curzon, Valentine, Rainbow, seedling, Mr. Hobbs, and Lord Rancliffe.

Twelve Picotees.—1st. Henry Steward, Esq., with Venus, Ganymede, Countess, Euchartrass, Euchartrass, Mrs. Barnard, Mrs. Keynes, Calliope, Countess, L'Élégant, Venus, and Duke of Devonshire. 2nd. Mr. R. R. Oswald, with Mary, Duke of Devonshire, Miss Walker, Alfred, Countess, Ganymede, seedling No. 21, Mrs. Kelke, Finis, Rosetta, Isabella, and Unexpected. 3rd. Mr. G. Kirtland, Bletchington, with Duchess of Bedford, Sebastian, seedling No. 8, unknown, Duke of Devonshire, seedling No. 6, Miss Charlotte, Duchess of Bedford, seedling No. 8, Lady Macbeth, Unexpected, and seedling No. 4. 4th. Mr. Elkington, Buckingham, with Diadem, Finis, Duke of Devonshire, Calliope, Calliope, Prince of Wales, Delicata, Prince Arthur, Duke of Devonshire, Mrs. Kelke, Sebastian, and Portia. 5th. Mr. Samuel Eyre, with Lord Nelson, Robin Hood, Amy Robsart, Duke of Devonshire, Green's Queen, Meg Merrilies, Little Harry Bertram, Annot Lyle, Little Harry Bertram, Venus, and Mrs. Bayley. 6th. Mr. Maltby, with Prince Arthur, Green's Queen, Bridesmaid, Lord Nelson, Portia, Miss Holbeck, Princess Royal, Lady Alice Peel, Duchess of Bedford, Jeanette, General Bem, and Amy Moss.

SINGLE SPECIMENS IN CLASSES. Carnations.—*Scarlet Bizarres*: 1, Splendid, Mr. John Keynes; 2, Admiral Curzon, Mr. C. Turner; 3, Mr. Ainsworth, ditto; 4, Admiral Curzon, Mr. Walker; 5, Lord Rancliffe, Mr. Keynes. *Crimson Bizarres*: 1, General Monk, Mr. C. Turner; 2, Oxonian, ditto; 3, Lord Milton, H. Steward, Esq.; 4, Jenny Lind, Mr. C. Turner; 5, Black Diamond, Mr. J. Keynes. *Pink and Purple Bizarres*: 1, Falconbridge, H. Steward, Esq.; 2, John of Gaunt, Mr. J. Keynes; 3, Sarah Payne, H. Steward, Esq.; 4, Falconbridge, Mr. John Keynes; 5, Ditto, ditto. *Purple Flakes*: 1, Mayor of Oldham, Mr. C. Turner; 2, Jacques, ditto; 3, Julia (Nicklin), ditto; 4, Squire Meynell, ditto; 5, Squire Trow, H. Steward, Esq. *Scarlet Flakes*: 1, Defiance, Mr. Charles Turner; 2, Ditto, ditto; 3, Comet, Mr. John Keynes; 4, Justice Shallow, ditto; 5, Ditto, ditto. *Rose Flakes*: 1, Lady Ely, H. Steward, Esq.; 2, Aglaia, Mr. Charles Turner; 3, Poor Tom, Mr. John Keynes; 4, Flora's Garland, ditto; 5, Ditto, ditto.

Picotees.—*Heavy Red-edged*: 1, Mrs. Norman, Mr. J. Keynes; 2, Dr. Pittman, Mr. C. Turner; 3, Sultana, ditto; 4, Mrs. Norman, Mr. J. Keynes; 6, Mrs. Hoyle, Mr. Chas. Turner. *Light Red-edged*: 1, Mary, Mr. R. R. Oswald; 2, Barzilli, Mr. Charles Turner; 3, Eugenie, ditto; 4, Ditto, ditto; 5, Duchess of Bedford, W. Colecutt. *Heavy Purple-edged*: 1, Countess, H. Steward, Esq.; 2, Ditto, Mr. Charles Turner; 3, Countess, Mr. Charles Turner; 4, Lord Nelson, Mr. Samuel Eyre; 5, Ditto, ditto. *Light Purple-edged*: 1, Finis, Mr. Charles Turner; 2, Lincker's Seedling, Mr. S. Eyre; 3, Finis, Mr. Charles Turner; 4, Mrs. Keynes, Mr. John Keynes; 5, Ditto, ditto. *Heavy Rose-edged*: 1, Alice, Mr. Charles Turner; 2, Mrs. Drake, ditto; 3, Ditto, ditto; 4, Alice, ditto; 5, Ditto, ditto. *Light Rose-edged*: 1, Ariel, Mr. Charles Turner; 2, Barnard, ditto; 3, Mrs. Barnard, Mr. J. Keynes; 4, Miss Sainsbury, ditto; 5, Mrs. Barnard, ditto. *Yellow Picotees*: 1, Conrad, Mr. Charles Turner; 2, Gipsy Queen, ditto; 3, Aurora, ditto; 4, Malvolio, ditto; 5, Euphemia, ditto.

The best PREMIER CARNATION, selected from the whole exhibition: Puxley's Defiance, as exhibited by Mr. Turner.

The number of flowers shown were, in classes, 96 Carnations and 96 Picotees. *Single Specimens*, 146 Carnations and 124 Picotees. Total 472. Amongst these were several of the most superb *new kinds*, and which are only in the hands of two or three growers, consequently only few of their flowers were shown; but of the varieties

previously sent out, and become general in the trade, the following obtained prizes according to the numbers annexed to each, which indicates its merit, and such kinds can with confidence be procured by persons desirous of possessing a selection of the best.

Carnations: Admiral Curzon 9, Falconbridge 9, Lord Ranelagh 8, Sarah Payne 5, Lord Milton 4, Flora's Garland 4, Squire Trow 4, Hale's Prince Albert 4, Puxley's Defiance 4, Justice Shallow 3, Black Diamond 2, Puxley's Jenny Lind 2.

Piotees: Finis 6, Lord Nelson 6, Mrs. Barnard 6, Duke of Devonshire 5, Venus 5, Mrs. Norman 4, Green's Queen Victoria 4, Mrs. Kelke 3, Mrs. Drake 3, Eugenie 3, Alice 3, Duchess of Bedford 3, Countess 3.

The classes to which they belong will be seen by referring to the stands and single specimens shown.

BRIEF REMARKS.

THE PISONAI TREE.—This is one of the most magnificent trees, both in foliage and flower, perhaps that exists. It appears to have been introduced, during the Inca dynasty, into the valleys of Cusco, where, in a climate the mean temperature of which is sixty degrees Fahrenheit, it attains such a size as is never witnessed in the largest of our European forest trees. It was generally planted about villages; in that of Yucay, the country residence of the latter Incas, eight leagues from Cusco, there exist specimens of it five fathoms in circumference, and nearly seventy feet high. The foliage, of a deep green, is thick and spreading, and the leaf is in shape something like the Cinchona; it flowers in December, and is then one mass of carnation colour.—*J. B. Pentland, Esq., Bot. Reg. xxv., 18, Miscell.*

BÖEHMERIA NIVEA, OR CHINESE GRASS-CLOTH PLANT.—A very beautiful fabric is manufactured from the fibre of this plant, first imported here in the form of handkerchiefs, and more lately to a considerable extent, being superior to any other kind of fabric for shirts. The genus belongs to the Urticaceous (Nettle) family.

ON DESTROYING ANTS.—I have not observed whether any satisfactory answer has been given to a query concerning the destruction of ants, by Q., in a recent number. If your correspondent has not yet found any remedy, I should recommend him to try what I have seen used with perfect success in the south of Europe, which is *garlic chopped small*, and laid across the ants' usual track. They dislike this so much, that it will completely drive them away, and the effect will last long after the smell has ceased to be at all perceptible. This, though it will not destroy them, will prevent the annoyance which Q. complains of in his conservatory.

CULTURE OF TROPEOLUM TRICOLORUM.—It has been discovered that the tubers of this plant increase with much greater rapidity when placed on the *surface*, instead of being plunged *under* the earth. It is also found of great value to the small and tender roots of *Tropeolum*, to place the pot in which they are grown within another pot, this obviates the necessity of using pots of so large a size, as would otherwise be the case, the outer pot preventing the rays of the sun from falling on the inner pot; the roots are therefore kept in a much cooler state with a smaller quantity of earth, a circumstance of great importance to the culture of this and all plants remarkable for their small and delicate roots; which, in order to preserve them from being overheated, and rapidly dried by the influence of strong sun, are often over-potted, and therefore in great danger of being saturated by inattention in over-watering, thereby causing the roots to decay.—*A Nobleman's Flower Gardener.*

ON EDGING FOR A WALK.—For several years I have had the following mentioned evergreen plants for edging to walks, and they combine neatness with beauty; they have been admired by all who have seen them. *Erica herbacea*, and its varieties, grow about four inches high, and are easily kept compact; mine are six inches in breadth, and they commence blooming about the middle of January, in warm situations, and continue one mass of bloom for several months. Flowering, too, at so dreary a season in winter, it is a very interesting object to have in view from the dwelling, or frequented walk. *Erica cinerea*, with its several varieties, also makes a very interesting and pretty edging. When out of bloom it has a neat and pleasing appearance; they bloom from July to the end of the summer. *Menziesia polyfolia alba*, blooms dwarf, when

four to six inches high, and its beautiful pearl-white flowers produce a very pretty effect; it begins to bloom in June, and continues to the end of the season. There are others of the *Menziesias*, as purple, rosy red, etc., also several others of the *Ericas* which are suitable for the purpose; but the three named kinds are what I possess, and have so adopted. I have sandy peat to grow them in.—*Clericus*.

CARNATIONS.—Your correspondent's remarks respecting the *colours running or sporting* of his Carnations will doubtless be read with interest. I for one am sorry to say that I have had half a dozen of my best flowers sport this season, and I am at a loss to what to attribute it. I certainly cannot say that high manuring is the cause of the evil; for in my case, having nothing but green manure by me, I had them potted without any manure at all. High manuring cannot therefore be the sole cause of flowers sporting, although no doubt more flowers run from that cause than any other, for they are not so liable to sport in the open borders in common mould, as in rich soil. I have generally noticed that in hot dry summers the flowers are very apt to sport; and I have no doubt that the season, as well as the soil, has a great deal to do with the evil. We generally find that Scarlet Bizarres, Purple Bizarres, and Scarlet Flakes are the classes that are most liable to run, being very rich and high in colour. I am of your correspondent's opinion, that manure-water should not be applied until the pods begin to burst; but it is a good plan to water them with a little clean soot-water, in order to keep the foliage of a good dark colour. The following compost has been recommended by an eminent grower for flowers apt to sport, or we may say for the more delicate kinds, which are the most likely to sport:—Three harrowfuls of good loam; one ditto old rotten cow-dung; two ditto ditto horse-dung; half ditto sand; half ditto lime rubbish, or old plaster, to be mixed well together twelve months previous to its being used.—*Florista*.

TO TAKE IMPRESSIONS OF LEAVES.—Take green leaves of trees and flowers, and lay them between the leaves of a book till they are dry. Then mix some lamp-black with drying oil, and make a small dabber of some cotton wrapped up in a piece of small leather. Lay the dry leaf flat upon a table, and dab it very gently with the mixture till the veins of the leaf are covered; being careful not to dab it so hard as to force the colour between the veins. Moisten a piece of paper, or, what is better, lay a piece of paper between two sheets of moistened paper for several hours, and lay this over the leaf that has been blackened with the liquid; press it gently down, and then lay a heavy weight upon it and press it down very hard. By this means you obtain a very beautiful impression of a leaf with all its veins; even the minutest will be represented in a more perfect manner than they could be drawn with the greatest care. Impressions thus taken may also be coloured in the same manner as prints.

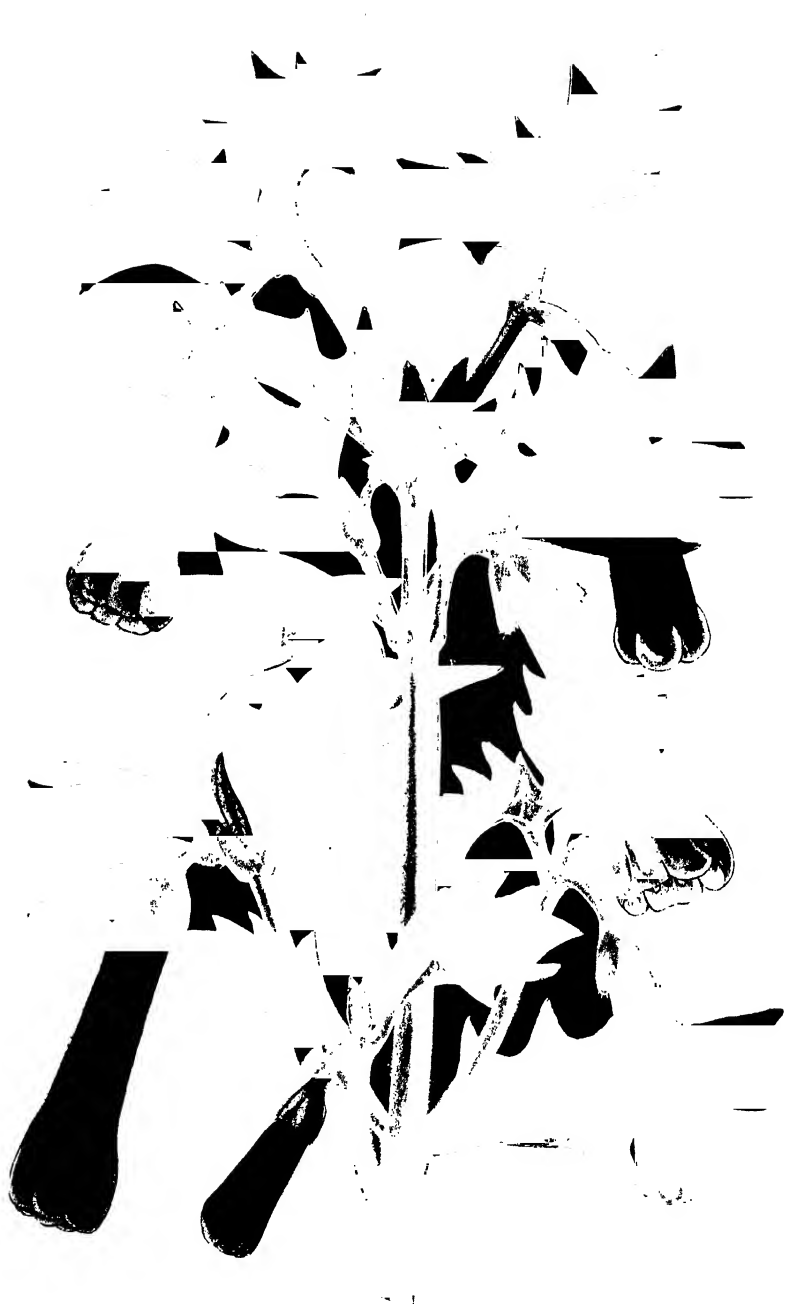
SWEET-SCENTED CAMELLIA.—Would your correspondent "James" inform me whether his sweet-scented Camellia is a single or double variety. If single it is no great novelty, as I have a seedling which has bloomed twice, and proved decidedly fragrant each time. To me the scent resembles that of a Wallflower, but not so strong, while others have compared it to a Hyacinth. It is large single variety, and bloomed first three years ago. Being anxious to get a double kind possessing the same property, I impregnated it with double varieties and obtained seeds, plants from three of which bloomed last year at two years old. No 1 was double, but it had no scent. No. 2 was single, and both in scent and shape resembled the parent. The 3rd was single, but without any scent. Last year the mother plant bloomed again, but I was not fortunate enough to save any seed either from that or the young sweet-scented one, No. 2. It is full of buds this year, and appears to be a very free bloomer; but I shall not be satisfied till I get a good-shaped double sweet-scented variety. "If "James's" plant possesses these qualities, it is certainly a valuable acquisition.—*John Hally, Blackheath*.

FLORAL OPERATIONS FOR OCTOBER.

FLOWER GARDEN.—*Hollyhocks*: now make new plantations of these noble flowers. *Auriculars*, *Polyanthuses*, *Carnations*, *Pinks*, etc., should be placed in their winter quarters, in a dry, sunny, sheltered spot, where a free circulation of air can be admitted on all proper occasions. Any plants out in the open beds, as *Lobelias*, etc.,

should be taken up and potted, for winter preservation, in pits, frames, etc. *Chrysanthemums* grown in the open ground, and required for blooming in-doors, should be taken up as entire as possible, and be potted with due care. All tender kinds of plants, as *Scarlet Geraniums*, *Verbenas*, in fact, every kind requiring winter protection, should be housed immediately; it is bad policy to put it off a single day longer. All plants like light; place them as near to the glass as convenience will allow. Prepare the *Tulip-bed*. *Dahlias*: let the crown of the roots be covered with a few inches deep of soil around the stems. Beds of *Pansies* be made. Shrubs of all kinds may be planted. *Roses* now planted soon push new roots, and become well established before winter; the soil being somewhat warm excites the roots immediately. *Pinks* also may be planted in beds. Shrubs, etc., forcing for winter bloom: such as are to bloom early should be gradually prepared, potted immediately if required, and by the middle of the month introduce such as are desired to bloom by Christmas, into the house or pit. The kinds which are well deserving such attention are *Roses*, *Honeysuckles*, *Jasmines*, *Poinsettias*, *Azaleas*, *Kalmias*, *Persian Lilacs*, *Andromedas*, *Tree Carnations*, *Pinks* (of which *Anne Boleyn* is the best), *Rhododendrons*, *Rhodoras*, *Deutzias*, *Ribes*, *Spiraea prunifolia*, *Mezereums*, *Gardenias*, *Cupheas*, *Heliotropes*, *Scarlet Pelargoniums*, *Eranthemums*, *Justicias*, *Corraeas*, *Chinese Primroses*, *Aconites*, *Mignonette*, *Primroses*, *Cinerarias*, *Stocks*, *Persian Iris*, *Crocuses*, *Cyclamens*, *Sweet Violets*, *Hyacinths*, *Lilies of the Valley*, *Fuchsia serratifolia multiflora*, *F. cordifolia*, *Oralis elegans*, *Cactus truncatus*, *Salvia splendens, fulgens*, and *gesnerifolia*. *Tropæolum*, *Triomphe de Gand* and *Lobbianum*, *Achimenes picta* and *gigantea*, *Cestrum aurantiacum*, *Aphelandra citrina* and *Porteana*, *Brugmansia Knightii*, *Begonia Prestoniensis superba*, *B. Ingramii*, *B. manicata* and *manicata rosea*, *Gesneria zebrina*, *G. zebrina splendens*, *G. zebrina compacta*, *Lantana aurantiaca*, and other new dwarf hybrids, as white, straw, cinnamon, rose, pink, lilac, ruby, etc.; *Epacris*, many fine winter blooming; *Neriums*. Seeds of many annuals should now be sown in the border, and others in pots; such will bloom early next spring. *Brachycoma*, *Schizanthus retusus* and *Hookerii*, *Rhodanthe*, and *Salpiglossis*: seeds now sown in pots, plants potted off when strong enough, will bloom vigorously next spring.

GREENHOUSE, ETC.—If the stock is not housed, it ought to be done immediately. Care must be taken so that one plant may receive something like its proper treatment, without interfering materially with the well-being of its neighbours; and the tender ones must be placed in the best part, for protection from cold wind, etc. *Pineleas*, *Lechenaultias*, *Aphelaxis*, *Boronias*, *Gomphotobiums*, and *Diosmas* are injured by being placed where there is a current of wind. Let each plant have all the space possible, and the robust large-leaved kinds and the very slender delicate sorts should be kept as separate as can be arranged, so as to allow a due circulation of air. Be careful that the pots, etc., be perfectly clean before arranged for their winter situation. Repot *Cinerarias*, etc. Let *Camellias* which are to bloom early be placed in a warmer situation, also any *Chinese* or *Indian Azaleas*, so that they may be gradually advancing. In watering the stock of plants, let it be done in the early part of the day, so that any excess may be dried up before evening, and damps be avoided, otherwise mouldiness will ensue. Thin away the flower-buds of *Chrysanthemums*; water occasionally with liquid manure. *Calceolarias*: pot off seedlings to bloom next season. *Pelargoniums*: the plants headed down some weeks back have now pushed shoots an inch or two long; these should be thinned properly. The plants must be repotted, in order to have the roots well established before winter. Shake off the soil, and shorten some of the long roots, so that young fibres be promoted, which is essential to the vigour of next bloom. Have a free drainage in the pots. Compost, turfy loam well chopped up, with an equal portion of sandy peat and well-rotted leaf-mould, and half the quantity of well-rotted dung. Give air to the plants in the daytime, and be careful not to give over much water at the roots, for if saturated they will be injured. Young-struck plants should have the tops pinched off, to cause the production of side-shoots, to render them bushy for next season. Repot some of the *Scarlet Geraniums* (so called) to bloom during the autumn and winter; they are charming ornaments. So with the new *Tree Carnations*, of which there are many very beautiful distinct varieties, deserving a place in every greenhouse and sitting-room.



The Floricultural Cabinet.

NOVEMBER, 1855.

ILLUSTRATION.

DESFONTAINIA SPINOSA (HOLLY-LEAVED). Syn. *D. Hookeri*.

SIR W. J. HOOKER states, "this splendid acquisition to our gardens has been long known in our Herbaria, but its place in the *Natural System* is still a puzzle." It belongs, however, to the Linnæan class *Pentandria*, and order *Monogynia*. It is a native of Valdivia, in Chili. A stiff erect-growing shrub. Mr. William Lobb forwarded it to Messrs. Veitch. It flourishes in the greenhouse, and plants having been tried out-doors, at Exeter and other colder localities, it proves to be *perfectly hardy*, growing and blooming freely. It is an evergreen of great beauty, and for its *foliage* alone it is worthy of all praise; but, from the fact of its producing an abundance of its charming pendulous flowers, it possesses a double claim on our admiration. It would be difficult to imagine a more charming plant. Its appearance is much like that of *Ilex dipycena* but of a deeper green.

REMARKS ON THE PROGRESS OF FLORICULTURE, ETC.

BY THOMAS RUTGER, ESQ.

It must be gratifying to the lovers of floriculture to see the vast improvements that have been made of late years, and are still making in the culture of flowers, as well as that of their being disposed in masses, in accordance with the taste of the present day; and in these days of improvement in the arts and sciences, it is pleasing to see that horticulture in all its branches is keeping pace with the other improvements of the day. We have in a great measure to thank the press for the diffusion of knowledge gained, the tendency of which is to stimulate an onward course towards the development of the vast resources which still remain for investigation, and when brought to light, may prove highly beneficial. We are also greatly indebted to the individuals who, by search and application, have devised the

things both for use and ornament have been discovered, have freely given to the public the result of their labours. These have thus been thus liberally disposed, the *Cabinet* has, up to this point, held on its course, and having now nearly completed its thirty-third volume, is a sufficient indication of the estimation it has been and is still held in, as a medium to offer to the public such articles on floriculture as may afford instruction as well as pleasure to the admirers of Flora. But while the *Cabinet* has many valuable contributors, it is to be lamented that there are persons still to be found who deprecate the idea of giving to the public what they have discovered anew in the art of culture. Some years ago, when I occasionally contributed articles to the *Gardeners' Magazine*, I was accosted by one in the profession, condemning the course I was pursuing, in giving to the public the knowledge I was in possession of. My reply was, that I considered it a duty devolving on every person to be useful to his fellow, as far as his capabilities would allow, and that it was on that principle I acted, and also for what I owed in return for the knowledge I received from others, who liberally and freely contributed to the general stock of knowledge. And even recently I know of an instance of a young man who, having contributed an article to the *Cabinet*, was given to understand by the gardener under whom he was employed, that if he persisted in the thing he must abide by the consequences. Query, was the gardener fearful that his pupil (for a pupil he was) would outshine his master? or was it through a narrowness of principle which made him thus act? Whatever might have been his reasons, they reflect nothing to redound to his liberality, nor credit for stimulating the young man onwards in his progress for usefulness to the public. Such conduct needs no other comment but that of reprehension.

EXTRAORDINARY GROWTH OF LOBELIA MULTIFLORA SPLENDENS.

BY MR. GEORGE HARDING, OF DUNHAM-MASSEY, ALTRINCHAM,
CHESHIRE.

THIS year the superior growth of this beautiful bedding plant in the gardens of the Right Hon. the Earl of Stamford and Warrington, at Dunham-Massey, has far surpassed expectation, and gained from many great admiration, which has induced me to note down the particulars for your monthly periodical.

In the beginning of June a bed of this *Lobelia* was planted in a compost of *loam* and *peat*, in equal parts. The plants were nothing extra then; but now (*September 20*) they stand *five feet two inches high*, flowering two feet eight inches up the stem, and are extraordinarily beautiful; all in one complete mass of the richest scarlet.

"The Lobelia" (the Lobelia). "Yes, I have seen it, but it is not the same as the one I have seen in the garden." "Well, it is not the same as the one I have seen in the garden, but it is a good resemblance. I may say that the plants have pushed numerous side shoots, which promise to bloom, in due time, very well."

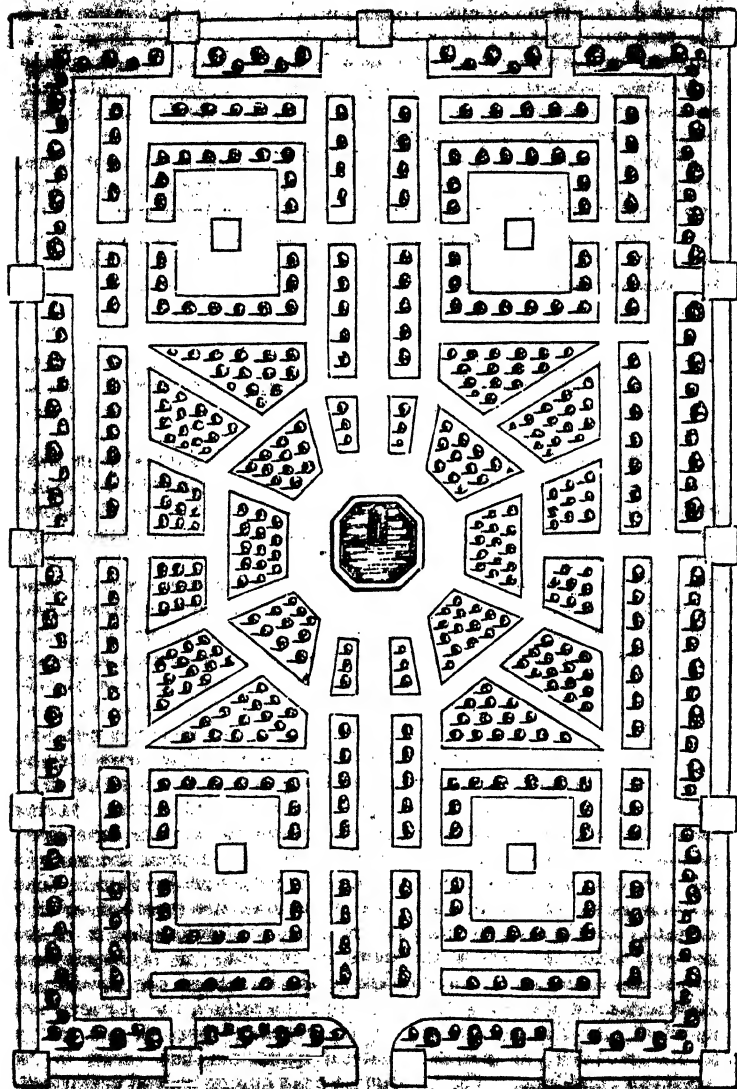
TREATMENT OF IMPATIENS JERDONII.

BY MR. THOMAS SHEPHERD, GARDENER AT BAENES HALL,
NEAR MANCHESTER.

THIS beautiful new plant is a native of India, but I have treated it as a *greenhouse plant*, and find it succeeds most admirably. The following is the course of treatment I pursued:—In February, 1854, I purchased two young plants at Messrs. Veitch's, and immediately repotted them in a compost of equal parts of good turfy loam (well broken), sandy peat, and one year old cow-dung, then in a dry state, with a sprinkling of bits of charcoal, and placed them at the warmest end of the greenhouse, giving water sparingly till they began to push afresh; this they soon did. I then gave an increase accordingly. Early in May I repotted them into larger pots (twenty-fours), keeping them in the same situation. Early in June they began to bloom, and continued to do so till November. I then gradually decreased the water, so that in winter the soil was only just moist enough to preserve the plants from *shrivelling*; and they were placed in the cool but dry end of the greenhouse, where they were just preserved from frost. Early in February last I carefully took away the old compost, repotted in lesser-sized pots, placed them at the warmer part of the house (where the hot-water pipes enter), and then treated them as in the previous year. They began to bloom in June, and are now (September 15) in great beauty; the fine trusses of the brilliant scarlet and yellow blossoms being very ornamental. It is easy of cultivation, readily propagated, and worth a place in every greenhouse. If there be the convenience of a hotbed frame, of gentle heat, at work in spring, the plants might be placed therein for a few weeks to start them, then be removed into the greenhouse. I find the plant blooms well in a dwelling-room window, placing it there when it is nearly beginning to bloom. I think it might be grown quite successfully solely in a dwelling-room, at all its stages. It is well worth trying.

DESIGN FOR A FLOWER GARDEN.

BY T. BUTTEL, ESQ.



This accompanying design, strictly geometrical in its construction, is

supposed to be surrounded with a dwarf wall, covered with Portland stone, whereon places are indicated for vases, or other embellishments which may be thought appropriate. The recess at the farther end is intended for a stone summer house, and the pond in the centre for a fountain with gold and silver fish. In the centre of the four quadrangular compartments dwarf pedestals may be erected, surmounted with vases, statuettes, or any other ornamental embellishments, such as taste or fancy may direct. If box edgings are adopted, they should be kept dwarf or neatly clipped.

Modern flower gardens, geometrically laid out in straight lines, are now, I believe, not so frequently to be seen as they were formerly, excepting perhaps on a large scale, where straight lines are in accordance with the structures, to which they may be considered as appendages; nevertheless, it may not be amiss to introduce a design of the kind occasionally in the *Cabinet*, by way of variety.

GENERIC DISTINCTIONS IN PLANTS.

BY A BOTANIST.

NOTICING that a correspondent asks for information on what generic and specific distinctions of plants are founded, I send the following particulars on the subject. The GENERIC DISTINCTIONS of plants, according to the Linnæan or Sexual System, are regulated by the fructification. The parts known to early botanists were few, and might be well thought insufficient for distinguishing the various productions of nature. They therefore had recourse to the habit of plants, and other circumstances, for substitutes, and by this means a greater number of genera were established, which the new system is forced to reject. The fructification being admitted as the only sure foundation of the generic distinctions, all vegetables that agree in their parts of fructification are to be put together under one genus, and all such as differ in those parts are to be divided. The characteristic part of each genus is to be fixed from the number, figure, proportion, and situation of all the parts; but as there are few genera wherein all the parts are constant in every one of the species, recourse must be had to some one single circumstance that is constant, and make it the essential character. This in most genera may be found. The distinguishing part of *Alnus* lies in the denticles (toothed) of the stamina; in *Equisetum*, a mutilate stamen; in *Ranunculus*, it is the nectary, which is a pore in the claws of its petals; in *Hydrophyllum*, by the same, though a closed chink in the lacinae of the corolla; in *Helicoborus*, by its being tubulose; in *Panocratum*, the stamens are inserted into the nectarium; in *Hycosymus*, there is a covering to the capsules; in *Rosa*, a lateral nectarium, but various in the corolla and pistillum. The *Campanula* has a quinquevalve, but it is inconstant in its corolla and capsule; and, lastly, the *Trifolium*

a stigma of singular construction, but varies in the beard of its corolla. There is, however, one part of fructification that can be relied on as a constant characteristic mark for all genera, it being found that the part which is constant in some genera will be inconstant in others. Thus in *Carica*, the flowers of the male part are monopetalous, and those of the female pentapetalous; in *Myrica*, some species have naked seeds, others berries; in *Fraxinus*, some have a naked flower, and others a corolla; in *Geranium*, some have a regular corolla, others irregular; in *Linum*, some are pentapetalous, others tetrapetalous; in *Aconitum*, some are tricapsular, others quinquecapsular; and in *Trifolium*, some are monopetalous, others polypetalous, some monospermous, others polyspermous. This inconstancy of particular parts of many genera has been another source of error in the earlier botanists, who have parted many plants from their congeners on this account. When the characteristic mark of any genus is wanting, in any particular species, we should proceed with caution, lest we confound genera that should be distinguished; and when this mark of any genus is observable in some species of another genus next of kin to it, a like caution is again necessary, lest we should multiply the genera, by parting species that should stand together. Thus we find, in the *Sedum* and *Cotyledon*, the nectary adheres to the base of the pistillum; in *Epilobium* and *Oenothera*, the calyx is tubulose; and in *Mespilus* and *Oratægus*, the structure of the flower is alike. The more constant any part of the fructification is found, throughout the several species of any one genus, the more it may be relied on with certainty as a characteristic mark of that genus. Thus, the nectarium in *Hypecoum* is constant, but not the siliqua; the *Convallaria* is constant in its spotted berry, but not in its corolla; the *Lobelia* in its corolla, but not in its fruit; and the *Cassia* in its corolla, but not in its siliqua. In some genera, one part of the fructification is found to be most constant, and in others another, but there is no part that is not subject to variation; thus we find the pericarpium variable in the genera of *Impatiens* and *Primula*, and the seeds in *Ranunculus* and *Alisma*.

If the flowers agree, while the fruits differ, the genus must not be parted. Thus, in the extensive genera of *Hedysarum*, *Cassia*, *Acacia*, etc., a great number of species have been ranged under the same genus, on account of the conformity in their flowers, though there is variation in the fruit. That the figures of the flowers are more certain than that of the fruit, appears from many examples, as from *Campanula*, etc.; but there is a great variation sometimes in the proportion of the parts of that figure. The number of the parts is also liable to variation, and is sometimes found to vary even upon the same plant, particularly in Garden Rue (*Ruta graveolens*), *Adoxa*, *Tetragonia*, etc.; in the flowers of all which the number of the parts vary from five to four. In these doubtful cases, the natural number must be collected from the primary flower; but in the variation of the number of the parts

there is a proportionable affinity worthy of remark. In flowers, the stamina usually vary from ten to eight, and from five to four; the calyx and corolla from five to four, and the whole flower from four to three; and the fruit usually varies from five to three, and five to four. The situation of the parts is the most constant, very rarely varying in the same genus.

The regularity of the petals is not so much to be depended upon; for we see in *Geranium*, the European species have regular corollas, but the African have irregular ones. The nectarium has been made of the greatest consequence in forming genera; this part had not even a name before Linnæus distinguished it; it is a very decisive and sure mark, and can be relied on.

The stamina and calyx being less subject to luxuriance, are far more certain than the petals. The corolla varies as to its figure in many genera, and also in number; being, in *Ranunculus* and *Helleborus*, pentapetalous in some, and polypetalous in others; in *Statice*, pentapetalous and monopetalous; in *Fumaria*, dipetalous and tetrapetalous, and the number is also variable in the same species, as in *Carica* and *Jatropha*.

The structure of the pericarpium was formerly thought to be of great consequence in determining the genera, but there are examples that demonstrate the contrary. There are a great many genera that have been established on distinctions in the pericarpium, which are now rejected.

The characters of luxuriant flowers, whether eunuchs (deficient of stamens) or mutilate (deficient of calyx and corolla), cannot be allowed any place in determining the genera; for in full flowers no number of petals can be assigned, and the stamina are generally wanting, the number of which makes a part in the generic character; and in mutilate flowers, the corolla would be excluded from the description, contrary to the nature of the other species of the genus. But as the calyx in full flowers is scarcely ever altered, it may detect the genus, and the lowest series of petals in polypetalous corolla remaining the same, in respect to number, the genus may be often known by that character, as in *Rosa*, *Nigella*, and *Papaver*. (*Specific distinctions* will be given in the next number.)

WINTER TREATMENT AND PROPAGATION OF EPACRISES.

BY MR. WILLIAM THOMPSON, FLOWER GARDENER AT HEYTON
HOUSE GARDENS, MIDDLESEX.

By September the *Epacris* will have completed *their growth and formed their flower-buds*. See, therefore, that they are in a proper condition for wintering, their pots clean, and the drainage complete, for to

have that perfect is of more consequence during winter than at any other season; if it is imperfect, the water will lodge in the soil and turn it sour; the young roots will then perish, and the plant will soon show the ill effects of such conditions. This fact cannot be too strongly pressed upon the attention of the young cultivator. Should any worm casts appear upon the surface of the soil, means must be taken to get rid of them; if only one or two pots are infected, the most certain remedy is carefully to turn the ball out of the pot, and if the worms are outside, gently to remove them, without disturbing the roots; but if they are imbedded in the soil, they will be more difficult to come at. If the ball be gently struck with the hand, they will creep out of their hiding-places, and may be destroyed. Should these means fail, let the plants become moderately dry, and then give a good watering with lime-water; this will effectually displace them. The green fly sometimes prevails in the early part of winter on the young shoots; they are easily got rid of by smoking with tobacco. The application of water during winter is necessary, but only in moderate quantities, merely just sufficient to keep the soil somewhat moist, care being taken that the ball is moistened to the centre. All the artificial heat that is needed for the *Epacris*, is just enough to keep out frost. If the plants, or part of them, are kept in cold pits, they should be securely covered up every night when severe frost prevails; in very severe, long-continued frost, it may be necessary to keep them closely covered up even during the day. They have been so covered up for a week together without injury; but on all favourable occasions uncover them, and give them fresh air to dry up damps, and keep the plants fresh and healthy. Air must also be given plentifully to the greenhouse, both to keep down the temperature and sweeten the atmosphere. Once or twice during the winter let the surface of the soil be stirred, and all mosses and lichens removed, as well as weeds. Towards the spring, when the flower-buds are beginning to push, a top-dressing of fresh mould will be acceptable and useful.

In order to perpetuate choice varieties already known, the only way is to strike them from cuttings; they are by no means difficult to propagate in this manner, though certainly not so easy as a *Geranium* or *Chrysanthemum*. The materials necessary are some good sandy peat, some fine white silver sand, and two or three bell-glasses, together with a rather warmer house to place the cuttings in than the greenhouse. The best time is when the plants have plenty of young shoots upon them, which generally happens about the month of May. The best cuttings are such as are growing on the side shoots, because these are not so gross and full of sap as the leading branches. The shoots being in a fit state to take off cuttings, select some pots of such a size as will allow the bell-glass just to fit within them; fill the lower parts of the pots with broken potsherds for drainage, lay upon the drainage a thin layer of the rougher parts of the peat, then fill up with roughly sifted peat to within an inch

of the top, and fill the remainder with fine silver sand; give a gentle watering from a fine-rosed watering-pot, to settle the sand, then prepare the cuttings; take them off about one and a quarter inch long, trim off the lower leaves carefully with a very sharp knife, without injuring the bark; set the bell-glass upon the sand to make a mark, and within that mark, put in the cuttings, in neat rows across the pot; keep each variety by itself. Proceed till the number desired to be multiplied is all planted, then give a second gentle watering, to settle the sand close to the cuttings; let them stand half an hour in the shade to dry the wet off the leaves; then place the bell-glasses upon them, and set them in a gentle heat, shading them every day when the sun shines. Also, let the glasses be wiped dry every morning, for a month, and by that time the cuttings will begin to grow. To check them from drawing up weakly, uncover them for an hour or two every morning; and when they are rooted, remove them into a cooler house for three or four weeks, leaving the glasses off in dull weather, and shading them from hot sunshine; by that time they will be fit to pot off. If there is a considerable number, and room is scarce, they may be put into three-inch pots, four in a pot, and allowed to remain in them till the following spring. When they are potted off out of the cutting-pot, place them in a cold frame close to the glass, and shade till they are fairly established, to cause them to form branches close to the pots; snip off the tops as soon as they begin to grow afresh; and when they have filled the small pots with roots, repot them, and afterwards treat them in the same manner as the established plant.

ON HEATING A SMALL GREENHOUSE, ETC.

BY J. F. W., OF READING.

I HAVE perused with much interest a paper in last month's *Cabinet*, on heating small greenhouses with gas. In common with many others (particularly ladies), I have a small greenhouse, managed by myself, female servant, and lad. I have tried a small stove of Deane's (for which I gave two guineas), warranted to burn twelve or fourteen hours without attention; this I found a great deception, as it could not be kept in half the time, and being of single iron, or, at any rate, no air passing between the two plates of iron (if two there were), caused it to get red hot, which was both bad for the plants, and risked setting the place on fire. So I discarded this, and lost my two guineas, only wishing my experience could prevent others believing the false advertisements so constantly put forth. Next I tried a gas stove set forth as requiring no flue. The coke stoves of this maker are admirable for producing heat; but the gas not so good, as I was quite unable to keep out the frost last winter, and lost all my plants. I also found that the alteration of pressure, after I had gone to bed, just

the light, but allowed the gas still to pass, so that I had to pay for what did me an absolute mischief, and was certainly dangerous, besides getting the cold in the house.

Now if your correspondent would send plans of his method, in time for the November or December Magazine, it would, no doubt, be greatly beneficial, adding also the size of pipes and boiler, the expense per foot of pipes, the expense of boiler, exactly the thickness of it, and of what it is composed, with the price and the size of jets, as well as the probable *cost of gas*, and especially the method of proceeding in management. It is scarcely to be credited the ignorance of many in this country; they go on in the old way, and it is years before they can be got to understand anything new. I have forgotten to state that I had almost determined to get rid of the gas altogether, having found that in the very severe weather I could not get any. Some nights, our street lamps and those in the shops would not burn; and one night the churches and chapels supplied by one of our gas companies were in total darkness; so that certainty must be ensured to have it supplied on all occasions, to preserve the plants from injury. Trusting soon to be put into a better way of management, I respectfully solicit attention to the subject.

REMARKS ON CLIMBING PLANTS.

BY THOMAS RUTGER, ESQ.

In the November number for 1853, at page 257, there is an article upon "plants for pillar decoration," recommending the *Heliotrope* for adorning pillars, wires, etc., in a cool conservatory, and the description there given of one running up a pillar, to the height of fourteen feet, is calculated to invite others to try their skill in producing the like effect. The plant thus finely grown is to be admired, not only for its "pendent branches, with clusters of flowers hanging gracefully from the extremities of each of them," but also for its rich perfume. After naming the *Salvia gesneriflora* and *Sollya linearis* as suitable for pillar decoration, the article concludes with "to be continued." As I should like to see the subject treated upon occasionally, I wish to draw the attention of some of your contributors to hardy climbers, as well as to the tender kinds. Some years ago, I was much struck with the sight of some fine *pillars of Roses*, which I saw in full bloom in Mr. Rivers's nursery, at Sawbridgeworth, and a splendid appearance they exhibited. I suppose his method may have been followed by many to the present day. There are, no doubt, many hardy climbers that might be trained in a similar manner, and among these I should like to draw the attention of your readers and contributors to the *Wisteria sinensis*. A well-trained pillar of this, at some twelve or fourteen feet in height, well furnished with its pendent racemes, would have a striking effect. I have seen it treated as a

The attention given to importing new species, and the intermixture productions raised in this country, have rendered the entire family one of the most interesting of what are termed floral plants. I was glad to see the remarks on hedges of them in the September number, which induced me to send the observations I now do.

Two years since I planted out in the open ground fifty kinds. I put them out in a raised border, a foot higher at the back than the walk in front, sloping gradually down to it, the soil being a sandy loam, on a dry substratum of broken stones. I had them placed in two rows, the first being plants grown as bushes, and the back row consisted of standards, each from three to four feet high. Many of these had been formed by grafting fine kinds upon the stocks of older ones, many of which I had possessed for years previously.

They united readily either in tongue or cleft grafting, or inarched. The border was in the pleasure-ground, had a south aspect, and a fine dense back of common laurel and yew, which formed an admirable shelter. The border contained roses, both dwarfs and dwarf standards, the same height as the Fuchsias. I planted them alternately along; and, when in bloom, they were a most interesting and beautiful sight, and continued to bloom from June to the end of October. At the latter period I took up all the standard Fuchsias, keeping some soil to the roots, and placed them, closely pressed together, in a shallow box, filling up between the balls of roots with good soil, and tying the tops (erect) together. I kept them through the winter, under the stage, in a dry greenhouse, and when the first effort to push in spring commenced, I replanted them out in their positions in the border. The bush Fuchsias I left in the border through winter, without cutting down the tops; for I had discovered that, if cut off before winter, the hollows of the stems became filled with water in winter: the frost operating, etc., caused the shoots to rot and die, and the plants are generally destroyed through it.

In November I covered to the extent of two feet around each bush, and amongst the shoots, with dry leaves to the depth of eight or ten

inches, sprinkling them over, to secure them to the spot, with an inch of soil. This preserved every plant; and, for the last ten winters, the *F. Baxteri*, *elegans*, *virgata*, *globosa magnifica*, and others, have retained their entire shoots uninjured, and though the last winter's frosts were very severe, they pushed lateral shoots to the very tops of the previous year's wood. Early in the spring I cut off the dead tops. Nothing in the floral way could exceed the very interesting beauty of the whole, when in full bloom.

I planted a number in various sheltered places of the pleasure-ground, too; several where they were even shaded under trees; and they succeeded admirably, having the necessary attention of watering in extended dry weather. The flowers were more beautiful by being partially shaded from hot sun; and though it has been stated they like full intense sun upon them, I have not found it so; but, on the contrary, they bloom more beautiful when shaded for four or five hours during the middle of the day. This, too, applies to those grown in-doors; especially so with the light-coloured ones, they being apparently more delicate, and are much improved by shading, as stated above.

As Fuchsias can be procured in such numerous varieties of form, size, and colours, very cheap, and being so easy to keep afterwards, and increase by cuttings with the greatest facility, they deserve culture in every situation, whether in or out of doors. A friend of mine has a wire-fence hedge, six feet high, consisting of Fuchsias, which are neatly trained to it, and cover it entirely in summer, which has a most beautiful effect; a small part of it is arched over to an opposite trellis, and the flowers hanging beneath (overhead), have an interesting appearance.

THE NECESSITY OF A PROPER ARRANGEMENT IN PLANTING A SHRUBBERY.

BY A YORKSHIRE LANDSCAPE GARDENER.

I HAVE been highly gratified in seeing the very handsome designs of gardens, which have been supplied by Mr. Rutger each successive month, but especially pleased with the general design he gave us in the September number, for six acres extent. I hope we shall have others. My present intention, however, is to supply a few particulars suited to aid amateurs in the proper arrangement of planting shrubs, trees, etc., in close connection with the dwelling-house, a general neglect of which is to be regretted. It now being the best period for planting, I beg the following remarks may appear in the November number.

The shrubbery may be defined to be the link which connects the mansion and the lawn to the flower-garden, or to the other parts of a residence, and is most generally planted either for shelter or shade,

although often as a screen to hide disagreeable objects, for which the plants which compose it are better suited than for forest or other trees. The shrubbery is often a matter of utility as well as of ornament, in which case it gives the highest satisfaction when formed for the purpose of shutting out the offices or the kitchen-garden from the view of the house; for sheltering the latter or the garden, or for connecting the house with the garden and the orchard, the shrubbery becomes useful and interesting.

Sometimes a shrubbery is formed merely for the purpose of growing rare shrubs, and for obtaining agreeable walks; in this case it is necessary to be at more pains, and to display a greater degree of taste in the laying of it out than in the formation of the useful shrubbery; in the former case, a tasteful arrangement of plants is a matter of less importance than the choice and disposition of kinds that will soonest afford shelter, and ultimately become thick screens.

In planting shrubberies for screens, to hide disagreeable objects, evergreens should form the principal mass, as affording a permanent blind, and giving a cheerful appearance even in winter. A few deciduous shrubs of the most showy sorts may, however, be with propriety added, which will give relief to the more sombre appearance of the evergreens, particularly while the former are in flower; but, from their nature of annually shedding their leaves, and consequently becoming thin in winter, they are not so well calculated for a permanent blind.

In the disposal of shrubs, the tallest should be planted farthest from the walk or front side, and the lower in stature in front, but if an immediate effect be desired, it is better to elevate the ground than to plant trees of too great an age; it is also a matter of importance that they may be planted thickly, as it is an easy task to thin them out when required. Little taste has generally been displayed in the formation of shrubberies as to the production of picturesque beauty; they are planted too generally in the form of sloping banks, without the least natural beauty whatever, although in this way they may answer the purpose of blinding out disagreeable objects of little merit, when seen even from their best side.

Great attention should be paid, in their planting, to give them a somewhat *natural appearance*, and not that of a surface as regular as if they were clipped with the garden shears. Straight lines should also be avoided as much as possible, and the margin of the shrubbery should be *broken* with deep indentures or sinuosities, and these should be neatly turfed over and kept mown. The walks which lead through this department should not be to any great distance in a straight line, if it can be avoided, neither should they be too much twisted. There is something in a fine gentle sweep or curve so pleasing in a road or walk, that few are insensible of its beauty. The breadth of the walks should be regulated according to the length and scale of the place, as too narrow walks for principal ones have never a good effect; they should scarcely, under any circumstances, be less than

five feet wide, and, unless for terrace walks of great length, should not be more than eight; if the greater breadth, they assume the appearance of a carriage-drive, and if narrower, they dwindle in appearance to a mere footpath.

By combining the more distant parts of the grounds with the lawn and house by means of shrubberies, which may be done, if executed with judgment. Space does not always give the idea of grandeur, for a limited sphere is often better adapted to the display of ornament and beauty. By good management a small strip of ground may be varied, by taking advantage of the ground (if any); or, if it be a level and monotonous spot, art can readily step forward and assist by raising banks, sinking the walks, and planting shrubs in thick masses, chiefly evergreen species, and conducting the walks in the most circuitous manner, so as not to intersect each other but as little as possible; however, care must be taken to give sufficient breadth of walk, and also a margin of grass on the sides, of unequal breadths, which will naturally assist in adding to the picturesque appearance of the whole. This may also be aided by forming the banks to be planted of unequal heights, which banks, in small places, need not occupy much surface at their base, so as to admit of as great a breadth of grass margin between them and the walks as possible; in some parts narrow, where it is deemed necessary, either for variety or for the more completely concealing objects which should not be seen; at others broad, and disappearing, as it were, in natural glades, in the distance. This margin of grass, where of sufficient breadth, should be planted with the finer species of ornamental trees and flowering shrubs, singly or in groups of three or five together, which would not be seen to sufficient advantage if planted generally amongst the shrubs.

Some attention to botanical arrangement might be paid in the distribution of the shrubs and ornamental trees, but this must not be carried to the extent likely to infringe upon picturesque beauty; however, such families as *Pinus*, *Juniperus*, *Buxus*, *Laurus*, etc., may be grouped with good effect, and, if judiciously done, will give a bolder effect to the whole than if they were planted promiscuously. Fine specimens of larger growing kinds should be so placed as to give effect and relief to the thicker masses of more humble growth. In the background may be placed a few fruit-bearing trees, which will display their beauties in spring with their blossoms, and in autumn with their fruit; in such situations also should be planted the stronger growing species of *Crataegus*, *Prunus*, etc.

On leaving the mansion, the walks should be conducted through the lawn in a graceful and natural manner to the shrubbery, and should be as much hidden from the principal windows as possible; they should then be continued through the shrubbery, the most circuitous walks leading to interesting objects, so as to relieve the mind and remove the idea that they lead to nothing. Fine specimens of ruins, either natural or artificial water, distant views of villages,

churches, woods, cottages, or the like, will always be pleasing. Shorter walks should also be contrived on which to return (as most objects lose their effect when seen over and over), as well as for a more convenient mode of reaching the more distant parts of the grounds. Neat resting-places should be placed in different parts, choosing the situation of some in shaded groves, others upon elevated spots commanding the finest views of the grounds or surrounding country. Much taste may be displayed in the formation of such seats, from the polished temple of Flora, Venus, &c., to the rude roots of trees and misshapen fragments of rocks or rude stone. Arbours of living trees of flexible habits, such as Mountain Ash, Willow, &c., may be planted and formed in bowers, and covered over with creeping plants, such as Clematis, Ivy, Honeysuckle, &c. Moss houses of various construction, root-houses, Russian, Swedish, Lapland, Scotch, and Swiss cottages should be disposed of in situations peculiarly adapted for them. Sometimes situations are naturally to be found adapted for the one or the other; in such cases the house should be chosen to suit the situation, and this will always be found to have the happiest effect. Where the situation has to be formed for either, much judgment and taste are required in the arrangement; this is not sufficiently attended to. Thus a Russian cottage, composed of oak timber-trees, and the adjacent ground planted with laurel and other polished shrubs, natives of southern latitudes, and close-shaven grass lawns, is as preposterous as the chaste Grecian temple in a rocky dingle. The ground should be chosen or arranged so as to persuade the observer that he is really in Russia, and the house should be composed of the same timber-trees used in the formation of cottages in that country, and be of the same form and size. The internal construction and furniture should also come as near to reality as possible. Hermitages and caves are also interesting, when proper situations are chosen; in these should be kept a small collection of books calculated for private study, and the furniture of this sequestered retreat should be exactly of that simple and useful nature as would be suitable to a recluse.

REMARKS ON THE MARVEL OF PERU.

BY MR. JAMES KING, FLOWER GARDENER, RAYSTON PARK, YORKSHIRE.

I HAVE been surprised that no correspondent has hitherto made mention of these charming flowering plants in your Magazine. My employers are great admirers of them, and in the flower gardens and borders of the grounds we have a considerable number. I am therefore desirous to bring them to the notice of the readers hereof, as they are worthy a place in every garden, and if grown in pots or vases, they are very ornamental for the greenhouse or terrace. They are particularly adapted for situations near the dwelling, or public

gardens that are frequented in the evening, or entrance hall to a mansion, as the flowers are awake, gay, and fragrant when most other blossoms sleep, and when the light of lamps, gas, etc., is thrown on their numerous and richly dyed corollas their appearance becomes enchanting, and highly deserving of the title which our FRATERNAL ADVICES in France give it, viz., *Belle de Nuit*, "Beauty of the Night."

In emblematical language, this flower is made the symbol of timidity.

The generic name *Mirabilis*, WONDERFUL, was given to this plant from the wonderful diversity of colours there are in the flowers. I have the following, viz., scarlet, purple, white, rose, yellow, red, violet, sulphur, white striped with violet, yellow striped with crimson, and yellow with purple, as well as the sweet-scented white, and some beautiful hybrids from it impregnated with the other species. In some instances, I have seen several of these colours in the flowers of a single plant.

This beautiful plant was originally brought into Spain from Peru, where it was called *Hachal*, and for some time it retained the name of *Hachal Indi*. Afterwards it was named *Mirabilia Peruviana*, by Carolus Clusius, nearly three hundred years ago. From the form of the flowers being somewhat similar to those of the Jasmine, several old writers named it *Jasminum Mexicanum*.

It was first cultivated in England in the time of Gerard, who informs us, in his work of 1597, that he had planted it many years in his garden, and that he had obtained ripe seed out-doors. He writes at considerable length on the beauty of the flowers, and says the plant ought to be called "rather the Marvel of the *World*, than of *Peru* alone"

Jacobus Antonius Cortusus, a professor of botany at Padua, who died in the year 1593, first discovered the cathartic qualities of the root of this plant, and it was shortly afterwards supposed [a mistake, Ed.] to be the true Gelorpo, or Jalap of the shops, and the plant was accordingly named *Mirabilis Jalapa*. The Japanese ladies prepare a *white* paint for their faces, from the meal of the seeds. The plant is common in all the West India Islands, where it is called Four o'clock Flower, from the flowers opening at that time of the day. But even there, as in England, when the sun is obscured, and the weather moderately cool, these timid flowers remain open during the entire day.

Seed should be sown in a pot, placed in gentle heat, in February, and, when the plants are strong enough, be potted singly into sixty-sized pots; early in May, repot those intended to be grown in pots, and those for the open ground plant out with balls entire. Or, in the warmer parts of this country, sow seed in the open ground in March, and the plants will bloom in perfection, after the earlier ones are over their prime. These spring-sown plants will form plants two feet, or rather more, high, and as much across. After the bloom is over, the roots of those in the open ground are taken up, dried a little, and

preserved, similar to Dahlia roots, and in spring planted out to bloom again. These plants will become much larger than in the previous year. We have many that are four feet high, quite bushy, and four feet across, which bloom in vast profusion, from June to November. We have roots that have thus been annually taken up and replanted for ten successive years. In a south-aspected border, in front of a high brick wall, I have allowed a number of the roots to remain in the ground wholly for the last four years; protecting the crown by means of six inches thick of dry leaves, and a large pot; or tile, laid over, to keep the root dry. The plants bloom as vigorously and profusely as those which have been taken up and replanted. I enrich the ground every winter, in the same way as done for Dahlias, and due attention is paid to a liberal supply of water. Any labour bestowed is most amply repaid by the beauty of several months' flowering.

NOTES FROM KEW.

BY MR. W. S. PRESTOE.

GESNERIA DOUGLASII.—This is the most distinct species that I am acquainted with, in regard to habits, and it is really a beautiful one. About six inches from the surface of the soil there is a whorl of three leaves, and immediately above them, alternate, there are three more, so close as nearly to form a single whorl; about six inches above them there is another whorl of three leaves, but these are much smaller than the lower ones. The corolla is funnel-shaped; the outside of it, at the base, is of a deep flesh colour, and decreasing in colour up to the extremity, till it is of a dull yellow, spotted with reddish-brown; the inside is yellow, beautifully barred with crimson. Its flowers are so plentiful that they compose a large head. It merits a place in every stove.

GESNERIA FLAVESCENS.—Leaves very large and very beautiful. The flowers are produced in spikes, something similar to *G. zebrina*; they are of a bright flesh colour, about three inches long, and produced very freely. It is an excellent addition to this beautiful genus.

GESNERIA MERKII.—Leaves heart-shaped. Flowers very large, of a beautiful bright scarlet. It is of dwarf habit, and merits a place in every collection.

ANOXEATUM ASPERULUM.—A hard-wooded, evergreen, greenhouse plant, growing from one to three feet high. Leaves lance-shaped; the upper side dark green, the under of a grey appearance. The plant is covered with *Arachnoides* (hairs like spider-webs). The flowers are in dense heads, at the extremities of the shoots, about two inches in diameter; before they are fully expanded they are of a reddish-purple, but when fully open, a flesh colour, changing, as age increases.

to a dirty white. The plant we possess has wintered in a cold pit, and flowered very freely.

COLUMNEA SCHIEDEANA.—A soft-wooded, evergreen, stove plant, growing from one to two feet high. The flowers are produced very freely; tube about two inches long (very much in shape of *Gesneria splendens*), yellow, with beautiful bright red stripes. It blooms in profusion. There is one source of regret with this plant, viz., its foliage is set so very thick all over, that its curious and beautiful flowers are very much hidden from view.

DIPLADENIA ATROPURPUREA.—A stove evergreen climber. Flowers funnel-shaped, the extremity divided and spreading very widely; of a deep crimson colour, nearly black, and very sweet scented. It merits a place in every stove.

ACHIMENES GIGANTEA.—It is a novelty beyond comparison, much resembling *A. picta*, but is *very much* larger, and the colours far brighter. The foliage is most elegant, beautifully netted with silver on green. The plant we possess is about two and a half feet high, and in one mass of flowers. It merits a place in every collection.

DRYMONIA VILLOSA.—A soft-wooded stove plant, growing about two feet high. The flowers are funnel-shaped, divided at the extremity into five segments, spreading quite flat, about one and a half inch across; white, with the throat and tube striped with blue. It blooms very freely, and is well worth possessing.

NOTES ON NEW AND SELECT PLANTS.

138. **CAMPANULA PRIMULÆFLORA**, (*Primrose-leaved*). Nat. Ord. *Campanulaceæ*.—*Decandolle*, in his "Prodromus," issued in 1839, gives a description of 182 species of Campanulas; and *Walpers*, in his recently published "Repertorium," describes 55 others, making a total of 237 species in this charming family of flower-garden plants. The one under notice is a native of Portugal, where it grows in moist rocks and shady situations. It is a hardy, perennial, herbaceous plant, each floral stem growing two to three feet high. The spike of flowers is long, and each blossom is nearly two inches across; the tubular portion is a primrose colour, the throat a pale slate colour, and the spreading five-parted limb (front of flower) is a pretty lilac-purple. (*Fig. in Bot. Mag.* 4879.)

139. **CLERODENDRON FETIDUM**. Nat. Ord. *Verbenaceæ*. Syn. *C. Bungei*.—A native of Northern China; first discovered by Bunge, and subsequently by Mr. Fortune, who introduced it into England. It has been treated as a *greenhouse* plant, where it flourishes admirably. It forms a small bushy shrub; leaves heart-shaped, about six inches long. The flowers are produced in large, terminal, close, half-globular-shaped, corymbose heads. Tube of each blossom an inch long, and terminal; five-parted limb three parts of an inch across. A very handsome species. Messrs. Masters, nurserymen, at Canterbury,

have had a plant which stood out, without injury, in the open air for six winters, till the winter of 1853-1854, but in May following, a sucker was protruded a foot from the ground, which attained a height of nearly four feet before autumn. It flowers in August, and is more fragrant than foetid. (*Fig. in Bot. Mag.* 4880.)

140. *GILIA DIANTHOIDES* (*Pink-like Gilia*). Nat. Ord. *Polemoniaceæ*.—Mr. Douglas discovered this lovely *annual* in California, but it has only recently been introduced into our gardens by Messrs. Veitch, who received it from Mr. William Lobb. It forms a closely branching spreading plant, growing from three to six inches high, and blooms in vast profusion. Each blossom, which is in *form* like those of the *Gilia tricolor*, but larger, being three parts of an inch across, of a delicate lilac colour; it is divided into five lobes, and at the bottom of each there is a dark blood-coloured spot; the five spots form a striking ring round the orange-coloured centre of the blossom. It continues in profuse bloom during the entire summer, if duly supplied with moisture. It is a charming bedding plant for a small bed, or for an edging, vase, etc. (*Fig. in Bot. Mag.* 4876.)

141. *ODONTOGLOSSUM MACULATUM*. Nat. Ord. *Orchidaceæ*.—In the orchideous stove at Kew it bears a long pendent spike of handsome flowers. Petals and sepals narrow, of a deep golden yellow, spotted and barred with rich brown; lip large, flat, heart-shaped; an inch long; white, with pale red blotches. Each flower is four inches across; very interesting and handsome. (*Fig. in Bot. Mag.* 4878.)

142. *RHODODENDRON KEYSII*. Nat. Ord. *Ericaceæ*.—This singularly remarkable *Rhododendron* is one of several new species which were discovered by F. J. Booth, Esq., in the mountains of Assam and Bootan. It was found at an elevation of nine to ten thousand feet above the sea level, on the summit and northern ridges of the Lablang, forming low thickets among Gaultherias and stunted yews, amid snows two and three feet deep. It forms a neat shrub, two to three feet high. Leaves three to four inches long, and an inch broad; they are somewhat fragrant, from the resinous scales with which they are clothed underneath. The flowers are produced in short axillary racemes, coming out of the *old wood*; each of these racemous branchlets bears five or six flowers, and the whole encircle (in a whorl) the main branch. Each blossom is cylindrical, *tube-shaped*; an inch long, and a quarter of an inch through; of a pale brick-red colour, tipped with yellow. The cluster of flowers therefore does not terminate the branch, but is crowned with the shoot of the season. It proves to be quite hardy, blooming in July and August. Messrs. Henderson, of Wellington Nursery, purchased all the stock that Mr. Booth discovered and introduced into England. (*Fig. in Bot. Mag.* 4875.)

143. *CUPHEA EMINENS*.—Most of our readers know and admire the lovely *C. platycentra* and *C. strigulosa*. The one we now notice is far superior to these, either for the greenhouse or bedding purposes. It is a neat-growing plant, and blooms in vast profusion. Each blossom is tube-shaped, one and a half inch long; the bottom por-

tica is yellow, next a rich carmine-red, then a golden yellow tip. Very handsome.

144. *GENETILLIS PULCHRA*.—A neat bushy plant, very twiggy. The flowers are produced in terminal branchy spikes, each having from seven to ten blossoms. Each flower is tube-shaped, one inch long; a rich scarlet-red, tipped with white. It blooms very profusely. Merits a place in every greenhouse.

145. *ACHIMENES ROEZLII*.—This very superb hybrid plant has much the appearance of *Gesneria zebrina*. The leaves are large, dark green, with zebra-like stripes of velvet on the upper side, and the under side of several shades of colours; remarkably handsome. The flowers are produced in a fine erect branching thyrses, and of a similar shape and size to those of the much-admired *Gloxinia maculata*; of a beautiful rose colour, shaded with lilac. The plant continues in bloom for many months. M. Van Houtte possesses the stock of it, and offers it for sale at 10s. 6d. each. He states "it is the most beautiful hybrid plant" in the whole of his immense collection.

146. *BEGONIA ZEYLANICA*.—In our last year's volume we described the great beauty of the foliage of *B. Thwaitesii*, and the present species is an equal rival to that; they are beautifully speckled with metallic silvery white spots. In M. Van Houtte's collection.

147. *MARANTA WARSCEWICZII*.—The leaves are large, and very beautiful, with rich zebra-like stripes. A charming stove plant. In M. Van Houtte's collection.

148. *MUSA ZEBRINA*.—The foliage is very large, zebra-like striped, with light and velvet green. A fine stove plant. In M. Van Houtte's collection.

149. *GLOXINIA ERECTA* (Fyiana form) *CÆRULEA*.—Flowers a deep blue, with the throat of a deep velvety violet colour; very distinct and pretty.

150. *G. ERECTA LINEATA*.—Outside it is white tinged with pink, and the inside a pure white, regularly striped with bright rose, and very pretty.

151. *G. ERECTA MARMOREA*.—A superb variety. The limb (spreading portion of the face of the flower) is broad, and of good substance. The flower is of a pearl-white, beautifully marbled with rose.

152. *G. ERECTA GRANDIS*.—Flower large, good substance, and fine shape, white, with the throat a rich amaranth colour; a very fine variety.

153. *AZALEA, EULALIE VAN GEERT*.—This very valuable acquisition to the greenhouse Azaleas is a seedling raised in the nursery of M. Auguste Van Geert, at Gand. It is a very free-growing plant, and blooms profusely. The flowers are large, each blossom three and a half inches across, of excellent form and substance, a beautiful blush-white, with the three upper segments of the corolla *numerously* spotted with rosy scarlet, and are very handsome. Its fine heads of flowers are very neat and ornamental. It merits a place in every

greenhouse. Plants may be obtained at the principal nurseries in England early next spring. (*Fig. in Verschaffel's L'Illustration Horticole*, 65.)

154. *Rhododendron*, MADAME WAGNER.—It is a seedling from *R. cinnamomum*, impregnated by some other unknown one, and quite hardy. The flowers are produced in large, somewhat conical heads of twenty or more blossoms, each flower being two and a half inches across, campanulate, white ground, with a broad margin of beautiful rosy scarlet. It is exceedingly handsome, and deserving a place in every collection. It may be had at the London nurseries next spring. (*Fig. in L'Illustr. Horticole*, 66.)

155. *Dianthus alba nigricans*.—It is a seedling, obtained between *D. caryophyllus* and *D. plumarius*, viz. Carnation and Feathery Pink. Each flower is large, a full double, near three inches across. The ground is nearly black, tinged with violet, and has a pure white fringed edging to each petal. It is exceedingly pretty, and merits a place in every garden. It is, too, a charming plant for pot cultivation and for forcing early. (*Fig. in L'Illustr. Horticole*, 67.)

156. *Begonia Verschaffeltiana*.—A beautiful hybrid, raised by M. Regel, in Belgium, between *B. caroliniaefolia* and *B. manicata*. The plant is very free growing, and blooms in vast profusion. The flowers are produced in *large panicles*, of a lively rosy scarlet, changing to pink. Each blossom is an inch across, very interesting, elegant, and ornamental. It is a charming variety, and ought to be in every collection of these valuable autumn and winter blooming plants.

MISCELLANEOUS.

PYRAMIDAL FUCHSIAS.—As decidedly the best collection of Fuchsias shown at Sydenham on July 2nd consisted wholly of plants of this shape, I give you my plan of growing them, and I hope that Mr. Bousie, the exhibitor of the group in question, will favour your readers with his mode of cultivation next week. I put a few old plants in a warm pit or vinery, where the temperature ranges about 55°, about the end of January or beginning of February, in order that they may have pushed out plenty of young wood by the middle of March. I then take off what cuttings I can get from each sort, preferring the shortest-jointed wood. First prepare as many four-inch pots as you may require, taking care that they are well drained, and the compost of a sharp open nature—coarse river sand intermixed with leaf-mould will be found to answer very well, with about one inch of silver sand on the top, for the purpose of inducing the cuttings to root freely. Water gently with a fine-rosed pot, then plunge the pots in the propagating pit, where there is a gentle moist bottom-heat, where in the course of three weeks they will have made roots enough to stand potting off. You may now pot off singly into three-inch pots in a light open sifted compost of rich loam, leaf-soil, and sand, equal parts, and if you have any bottom-heat to spare they will be the better to be plunged in it for a day or two, to give the young roots a start. They may now be removed to a warm pit or vinery, or whatever you find most convenient, where the atmosphere is kept moist, which will ensure a strong, healthy, and vigorous growth. When you find the pots full of roots repot into six-inch pots, using for this shift a good rich compost of turfy loam two parts, one of old rotten cow-droppings, leaf-soil, and sand. As this will be their last shift this season, care must be taken to provide good drainage; this can be secured by putting in plenty of potsherds, with two or three bits

of open turf or moss over all. As the plants will now be pushing strongly, they must be tied to a neat stake, as they will be sending out laterals or side shoots. As the making of these side branches secures the formation of the plant, a little weak sheep's dung-liquid-manure will be found very beneficial at this period of their growth. As the first tier of laterals has made its first joint, pinch it at that; this will not only enable you to have two shoots from each lateral, but will cause the leader to push away, and furnish you with plenty of side wood. The four first tiers of laterals will be enough to pinch this season, the rest may be allowed to grow on. They will be forming nice little plants now, so they may as well be taken to the greenhouse or conservatory, where, with a gay profusion of flowers, they will assist in keeping the house "dresy" for a short time. By the middle of November water should be withheld gradually, in order to ripen the wood, and they may be placed in a dry cold pit, or any out-of-the-way place, such as under the greenhouse stage, for instance, where they must remain all winter, as they will require no more attention till the end of February, when a little water may be applied sparingly to induce them to start; the knife must now be applied to cut back the side shoots that were pinched last year, to the second joint on the wood they made after they were pinched, and a couple of tiers of single shoots to the second joint, the rest to the first, and the leader to within four inches; thus you will have a pyramidal basis to work on. Place them now in a warm vinery, and they will soon show indications of rapid growth. After they are fairly started turn them out of their pots, and shake off all loose soil, and examine the roots; repot now in ten-inch pots, using strong fibry loam of a rich texture, old cow-dung, leaf-soil, and sand, equal parts, well mixed. As stated for last season, attend well to drainage, as they will require no more pot room this season; replace them again in heat, and pinch in according to the directions laid down for last season, always aiming at having the plant broad and full at the pot, and tapering to the top. Pinching should, however, be stopped after the 1st of June, for by the middle of the month they should get a prominent place in the conservatory, where, by July, they will be the objects of the greatest admiration in the house; liquid-manure must not be omitted upon any account at least three times a week, as this is now the only thing the plant will derive its nourishment from, and will cause it to bloom right on till October, when it will be getting unsightly, and may be removed out of doors to make room for some other favourite. When cold nights set in, remove them as before to a cold pit, etc. No more attention will be necessary till spring, when they may be pruned and started according to the time they are wanted in bloom. They can be had in bloom, by putting a few into heat by the beginning of January, about the middle of May; others, started accordingly, will enable you to have them in flower all the summer. Mr. Bousie's plants to be so fine now were doubtless struck in autumn; mine are chiefly for display late in summer.—*W. P. (Gardener's Chronicle)*.

BRIEF REMARKS.

THE LUCULIA GRATISSIMA. *Fragrant Luculia.* By "Amicus."—In order to bring into that notice and extent of culture it so deservedly merits, I beg to introduce it to the readers of your Magazine again. Last autumn I had a plant in bloom, that had numerous heads of flowers, which were from ten to twelve inches in diameter, similar to the largest of the *Hydrangea*, each lovely pink blossom being an inch and a half across, or more. Dr. Wallich, its discoverer, says of it, "It is impossible to conceive anything more beautiful than this tree when covered with its numerous rounded panicles of pink-coloured, very fragrant, large blossoms. It is a native of Nepal and Sylhet, in the former country growing in great abundance on Nag Urjooro and some of the other smaller hills in the valley; also at Bechiako and Koolakan; it delights in exposed, rather naked, situations, flowering, according to the locality in which it is found, nearly the whole year through. I can well conceive that the plant deserves this praise from what I saw of it, and still more so from the account with which I was supplied by the individual who managed the specimen I was favoured to see. The plant of *Luculia* had been cultivated by me in a pot for two years, and with tolerable success; but observing it to look very sickly, I determined to try the experiment of putting it into a large box,

of which there are several, fitted at the back of a house, intermediate between a greenhouse and stove, and designed for climbers. This was done in March, and the plant soon began to show, by its vigorous shoots, how well this change of treatment suited its nature. By the month of October it had attained a height of six feet and a half, each shoot being terminated by a magnificent head of flowers, similar to what you saw; the larger bunches, of which there were twenty-four, measuring three feet in circumference, besides thirty smaller ones. I am inclined to believe that the atmosphere of a stove is *too hot and close*, and that of the greenhouse rather too cold and damp, considering the late season at which the *Luculia* flowers; whereas, in the place to which it was removed, I frequently give a little fire heat by day *during autumn*, thus allowing air to be admitted at the same time, and the windows to be opened without detriment from the external cold. The soil in which it grows consists of a mixture of *loam and leaf-mould*, with bits of charcoal intermixed, and a free drainage. I am not aware that any other peculiar management is required, except *daily syringing during its growth to destroy the red spider*, to whose attacks it is extremely liable; also, after the *spring growth*, the young wood requires to be gradually *hardened off*, and towards autumn be placed *out-doors*; the plants will then bloom fine *in-doors*, on being taken there in due course.

THIRTY-SIX BEST PANSIES.—I annex the names of thirty-six of the best *Panaies* in cultivation, according to my experience in growing every good variety known. *Twelve Yellow-ground Varieties*: Alice (Downie & Laird), Ajax (Oswald), Lord John Russell (Turner), Alpheus (Dickson & Co.), Emperor (Hales), Hampden (Oswald), Duke of Newcastle (Turner), Monarch (Hale), Rev. H. Gossett (Turner), Lord Palmerston (Turner), Father Gavazzi (Holland), Sir John Cathcart (Turner). *Twelve White-ground Varieties*: Beauty (Downie & Laird), Nonpareil (Dickson) Duchess of Sutherland (Turner), Lord Raglan (Campbell), Royal Standard (Dickson & Co.), Minerva (Dickson & Co.), Marion (Dickson & Co.), Earl Mansfield (Dickson & Co.), Royal Visit (Dickson & Co.), Charles Cowan (M'Nab), Argo (Galbraith), Marchioness of Bath (Wheeler). *Six Dark Selfs*: J. B. Gough (Downie & Laird), Duke of Sutherland (Turner), Royal Albert (Turner), Medora (Downie & Laird), Fanny Kemble (Downie & Laird), Memnon (Turner). *Three Yellow Selfs*: Sovereign (Dickson & Co.), Wonderful (Hooper), Golden Eagle (Dickson & Co.). *Three White Selfs*: Royal White (Thomson), Mrs. H. B. Douglas (Downie & Laird), Countess of Strathmore (Hampden). The varieties are inserted as they stand progressively in quality.—ROBERT R. OSWALD, Vauxhall, Birmingham.—*Midland Florist*.

DRAINAGE FOR POTS.—I am but a novice and amateur, yet little as my experience is, I have found in it the incalculable good effects of perfect drainage, and have long used a material that I have not anywhere seen noticed, although amongst the wise men of the profession it may be quite familiar—that of using the round cinder that falls from steam-engine furnace-fires. It is clean and half vitrified, and agrees with the health of plants. I first place a few crocks to keep the hole free, then one or two inches of these ashes, then a little moss, and, lastly, the lumpy soil, etc.; by which I effect in a superior way all that is needed. The advantage that the plan possesses is, that no worms will go through these ashes, and they make a most perfect drainage.—*Senex*.

ON GENTIANA ACAULIS.—It is best propagated by seed, which should be sown as soon as ripe, in pots filled with loam and peat-mould. The pots to be placed in the shade till the approach of winter, when they should have the protection of a cold frame. In the course of the next summer the plants will be large enough to be pricked off into other pots, filled as before, and put in the shade. They should be kept in frames during another winter, and in the second spring they will be fit for final transplantation. It is necessary to observe, that if edgings are to be made of this plant, they should be planted at least four or five inches within the border or clump; and if planted in "patches quaint," should seldom be moved, as few plants suffer more by being disturbed. A moist rich loam is the best soil for this plant.—*Isabella*.

FLORAL OPERATIONS FOR NOVEMBER.

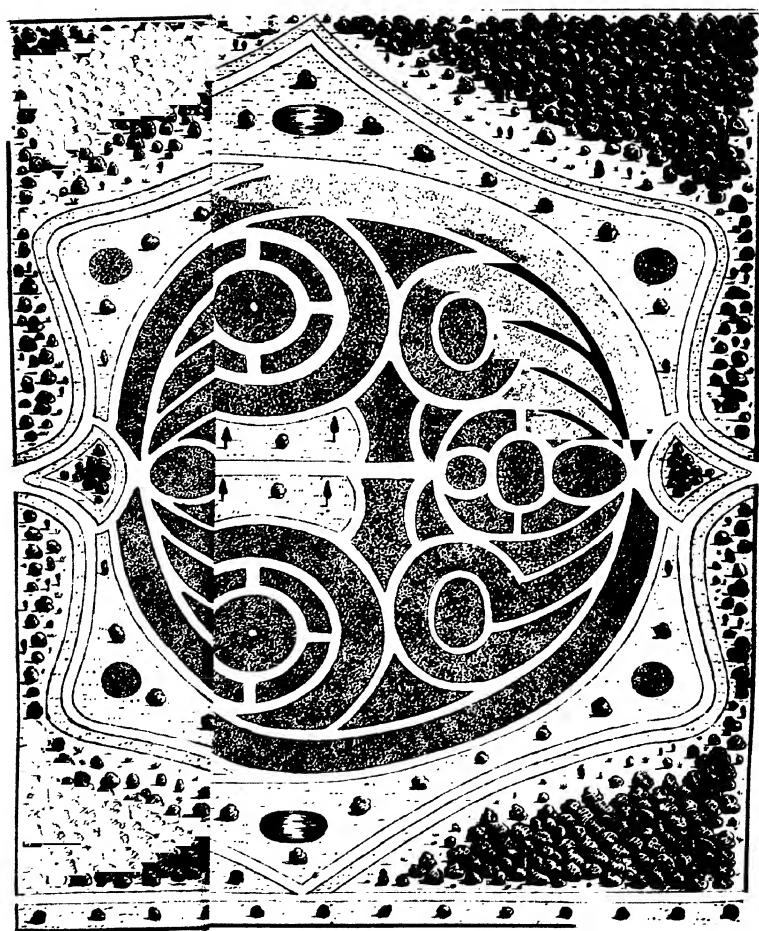
FLOWER GARDEN.—*Anemones* and *Ranunculuses* still plant for early spring bloom.

A number of the *Turban Ranunculuses* in patches are very showy. *Tulips*: plant immediately. A bed with raised sides, six inches high, is usually preferred, and having the surface of the bed a few inches higher in the middle than the sides. Let the bulbs be covered four inches deep. *Hyacinths* for a bed should be planted directly. *Auriculas*, *Polyanthuses*, etc.: allow a free circulation of air between the sides of the pots; raise the frame a few inches, and leave an opening. *Carnations*, etc.: have all air possible, but guard from excess of rain and severe frost. *Dahlias*: take up on a dry day; allow the stem to remain about half a yard long at present; in a fortnight afterwards cut it to six inches or less, if tolerably dry. *Chrysanthemums*: allow all air possible, to prevent them being drawn up weakly. Every other watering at the roots must be with liquid manure. Thin the flower-beds, and, if required for exhibition, only retain one flower to a shoot. *Pink and Pansy beds*: have small sticks pricked among the shoots or round the beds, to prevent the plants being twisted off by the wind. *Mildew* sometimes attacks *Carnations*, *Pinks*, and *Pansies*, and causes the leaves to be spotted; dust the foliage under and over with sulphur. *Hollyhocks*: the sooner planted, the better they will bloom. *Lobelias* of the tall class, in beds, should be taken up and placed in shallow pans or boxes, closely together; give but little water during winter; they may be kept in any cool place free from frost and damp. *Verbenas*: keep near the glass, give all air possible; only preserve from fogs and frost, and examine the under side of the leaves, to see if green-fly be there; if so, fumigate directly. If *mildew* appears, apply sulphur, only give water to the roots to keep the soil just moist. *Dress flower-beds*: give an addition of fresh soil and manure, divide and replant perennials, biennials, etc. Let a liberal profusion of spring flowering bulbs and herbaceous perennials, etc., be planted in beds and borders near to the dwelling-house, as *Crocus*, *Aconites*, *Snowdrops*, *Scillas*, *Hyacinths*, early *Tulips*, etc.; and *Hepaticas*, *Double Primroses*, *Polyanthuses*, *Auriculas*, *Wallflowers*, *Brompton Stocks*, etc.; also the little *Arabis grandiflora*, *Draba aizoides*, *Erica carnea*, *Dielytra spectabilis*, *Sedum oppositifolia*, *Turban Ranunculus*, and *Anemones*, etc. They produce a cheerful appearance during the spring months, and are handsome to be viewed from the rooms. If severe frost occurs, protect beds of bulbs. The stock of bedding plants must be looked after, whether in cutting, pots, or otherwise; allow plenty of air on all suitable occasions; do not over-water, rather have them nearly dry during the season of rest. Fill spare beds with evergreen shrubs that are in pots.

GREENHOUSE, ETC.—*Pelargoniums*: Repot the show class, give plenty of air, not too much water; fumigate if green-fly appear. Stop the lead of every shoot of the large plants which are wanted to be in bloom in June, towards end of month, and also of the young plants struck the past summer, to cause them to push side shoots. *Azaleas*, for early bloom, place in higher heat, and keep those cool which are to bloom late. *Calceolarias*, keep in a cool place just from frost; cuttings strike well now. *Tropaeolum tricolorum*, and other tuberous roots, must now be potted, if to bloom next season. *T. Lobbianum*, *Hookerianum*, etc., encourage; they will bloom through winter. *Salvia splendens*, *fulgens*, and *gesneriflora* encourage; they are fine for autumn and winter bloom. *Chinese Primroses* repot. *Chrysanthemums*, keep in airy cool situations. *Oxalis elegans* and others will bloom by due attention. *Neapolitan* and *Russian Violets* have in abundance in frames. *Izias*, etc., now pot and place in a cool situation, or plant out of doors in a warm place. *Cactus truncatus* will now show for bloom. *Cinerarias* keep in a frame near glass, but preserve from frost. A few may be forced for winter bloom; fumigate with tobacco, to save from ravages of the green-fly.

FORCING STOVE OR PIT.—Now have a stock of all the winter flowering plants brought in; begin with a temperature of about 55°, and increase gradually up to 75°. In addition to all bulbs, see the list in last month's calendar of winter blooming plants.

SHRUBS AND TREES.—If evergreen shrubs and trees were not planted last month as directed, they should be immediately; the earlier the more successful. Plant *Roses* now; it is the best time. Give six inches thick of well-rotted dung to all standard and other roses; take off a portion of soil, lay on the manure, and cover with earth. Prune *Roses* of any class but the *China*, *Tea*, and *Banksian*.





DIRT DE DINDI

The Floricultural Cabinet.

DECEMBER, 1855.

ILLUSTRATION.

ROSE, GLOIRE DE DIJON.

ROSA is derived from the Celtic *rhod*, *red*, in reference to the prevailing colour of the flowers at the period when it was given. The name now carries with it a charm, as well for the beauty as the unrivalled fragrance of its flowers, and it has justly been the theme of writers from the remotest antiquity, as a favourite and universal object of nature among all civilized nations. Mrs. Hemans has composed the following beautiful lines on this exquisite flower :

"How much of memory dwells amidst thy bloom,
Rose! ever wearing beauty for thy dower;
The bridal day, the festival, the tomb,—
Thou hast thy part in each, thou stateliest flower.

Therefore, with thy sweet breath come floating by
A thousand images of love and grief;
Dreams fill'd with tokens of mortality,
Deep thoughts of all things beautiful and brief.

Not such thy spells o'er those that hail'd thee first,
In the clear light of Eden's golden day;
There thy rich leaves to crimson glory burst,
Linked with no dim remembrance of decay."

The Rose is thought to have given name to the Holy Land, where Solomon sang its praise; as *Syria* appears to be derived from *Suri*, a beautiful and delicate species of Rose, for which that country has always been famous, and hence called *SURIATAN*, the *Land of Roses*.

"Each common bush shall *Syrian roses* wear."

VIRGIL.

"Who has not heard of the vale of Cashmere,
With its *roses* the brightest that earth ever gave."

T. MOORE.

Ludovica Verthema, who travelled in the East in 1503, says that *Tuscany* was particularly celebrated for roses, and that he saw flowers

both red, white, and yellow. Sir William Ouseley states in his work on Persia, that when he entered the flower garden belonging to the governor of a castle near Fassa, he was overwhelmed with roses. The celebrated Princess Nourmahal caused an entire canal to be filled with rose-water, for the gratification of the Great Mogul. The heat of the sun disengaging the water from the essential oil of the rose, this substance was remarked floating on the surface of the canal; and it was thus that the essence of Otto of Roses was first discovered.

The Rose we now figure belongs to the section termed *Tea Roses*. It is a seedling obtained by MM. Jacotot, of Dijon, who exhibited it recently at the Horticultural Society's show at Cote, in France, the grand medal was awarded for it, and the judges named it **THE GLORY OF DIJON**. Subsequently it was shown at the exhibition of the Horticultural Society of the Seine, in Paris, and the Lady Patronesses' large gold medal was awarded for it. The plant is of vigorous habit, handsome large foliage, rich shining green above, with the under side of the young leaves a beautiful carmine-red. It is a free bloomer, producing *large flowers* (we have seen some as much as five inches across, of a full double), they are *most delightfully fragrant*. In *dry* situations it proves to be quite hardy, either upon its own roots, or worked upon other stocks. It is a charming plant for the greenhouse, either planted out in a bed or in a pot, and for forcing is *superior* to any other Rose; by proper treatment, a succession may be had *all the year*. Being so valuable an acquisition, and easy of propagation, plants may be had at most of the principal nurseries of our own country, at a very reasonable price.

BULBOUS ROOTS.

BY MR. CHARLES BERNARD SAUNDERS, OF CÆSARIAN NURSERY,
JERSEY.

WHY bulbous-rooted plants are, as a general rule, less the object of the British gardener's attention than others is a question which has often suggested itself to my mind, for they are almost endless as to varieties and seasons of blooming. Before the snow leaves the ground, in the commencement of the year, we find the *Winter Aconite* producing its pretty little buttercup-like flowers, and contrasting their *golden* beauty with the driven *whiteness* of the surrounding surface, quickly succeeded by the *Snowdrop*—which hangs its lovely head in the most perfect semblance of humility, emblematising charity in one of its most simple forms—followed by *Crocus*, innumerable as to colour—yellow, blue, white, striped, cloth of gold, cloth of silver, and many more—as well as beautiful in form. Then come the pretty little Tulips: *Duc de Van Thol*, arrayed in crimson and golden hues, symbols of the rich vestments of the royal Duke,

whilst the pretty *Duchesse de Parma*, though less richly clothed as to colours gay, proves, by the pretty contrast of purple and white, all that modesty of appearance which gives grace to its charms. Numberless others belonging to the same train vie with each other in endeavours to produce an effect which elevates the mind as well as pleases the eye. *Tulips*, though less fashionable now than they were a century ago, are nevertheless beautiful flowers. It is true we cannot all stand at the end of the canopied bed and say, with the enthusiastic admirer, "That bed is worth hundreds of pounds;" nor would many of the accomplished young ladies of the present day be considered very desirable partners for life, if their sires could only present them an "unique root" of some particular variety of Tulip, as a marriage portion, unless other qualifications compensated for the deficiency. No; we would not wish any to enter so arduously on the love of Tulips, for fear they might prove the truth of the aphorism, "hottest love is soonest cold;" but we would have them so far enter into the spirit of enjoying them, as to feel a glow of delight in looking at them, and distinguishing the marked characteristics which constitute a good flower, as well as to feel they were deservedly the objects of their admiration, not of adoration.

Thus enlarging on the love of Tulips has led us from the regular rotation which we had purposed following, and we must now bring up the rear. *Winter Aconites*, *Snowdrops*, *Croci*, and *Early Tulips* are followed, if not preceded, by *Hyacinths*, in all their fragrance, beauty of colour, and wax-like perfectness of form. My lady's boudoir and drawing-room, no more than the humble cotter's windows, is too select a situation for their charms; and as Mynheer manages to supply us with them at such a moderate rate as to enable us all to enjoy them, why are they not more generally esteemed, and more generally cultivated, and why do the positions in which we find them growing prove the exceptions instead of the general rule? Could not efforts be made to cultivate them at home instead, of looking to "Johnny Dutchman" for the annual supply? and could not the gratification of growing as well as flowering them be extended through the different seasons of the year? Where the soil is rich and deep, we might follow the plans they adopt, and with the same appliances, we might produce the same effects. The only answer or excuse we can offer to such a proposition is, "that our fathers did not do it before us, and that we must needs follow their routine." Hyacinths are followed by the BOLD *Crown Imperial Lily*, in its different varieties of colour, styles of growth, and variegations of foliage; and where are the plants coming into bloom on our borders, at the same period of the year, that can vie with them as to importance of appearance? Their beautiful pendent bell-shaped flowers, surmounted by the *Imperial feather*, court our attention, whilst *Amaryllis* may, with the application of a little bottom heat, be made to follow suit. The pretty dwarf varieties of *Sparaxis tricolor*, of hues innumerable, and contrasts unequalled in artistic combinations,

with *Ixias*, in all their graceful styles of growth and beauty of colours, bid defiance to flowers as a whole, for competition as to elegance. *Oxalis*, too, now claim their position and demand our regard—to repeat the claim once more towards the close of the season. *Scillas* now produce their bold umbels and spikes of bloom, and the pretty *Peacock Iris*, or *Vieusseuxia glaucoptes*, expands its pretty flowers from the scathes, which contain one, two, three, and sometimes four or even five blooms, in which its pretty contrast of white and blue displays itself, as the most perfect symbol of a combination of chastity and beauty; and I shall be lost—aye, perfectly lost—if I attempt to describe all the other beautiful bulbous-rooted plants and flowers I am accustomed to see at this midsummer season of the year. But as I left all the varieties of the *Narcissi* unmentioned when I descanted on the beauties of the *Hyacinth*, I must also leave many here unnoticed, and proceed to mention that *Gladioli* now begin to show their beauties and expand their delicate petals, beginning with the varieties which have been raised with and from Colville's hybrid, taking up *G. insignis* and the distinct and classically-correct marked *cardinalis*, with the intermediate varieties crossed from *G. ramosus*, and continuing with the beautiful varieties of *G. Gandavensis*, which are the offspring of the now disregarded *G. Natalensis*, some of which are still in bloom (November 7), during which period we get *Liliums* in great variety and beauty of growth, both of plant and corolla, which, combined with their fragrance, make us like them best when we know them most.

Bulbs not only show their beauties in winter, spring, and summer, but in *autumn* also our gardens continue to be adorned by their pretty flowers. The pretty *Colchicum autumnale* flowers late, and, in *sheltered situations*, is still in all simplicity displaying its nakedness of stem. The Guernsey and Jersey Lilies (*Nerine Sarniensis* and *Amaryllis Belladonna*), though more rich in colours, and stronger in styles of growth, follow its example, and only produce their leaves after the splendour of their flowers is gone. The *Autumnal Crocus* (*Steinbergea lutea*) flowers at this season too, and shows its pretty contrast of dark green foliage and golden-yellow flowers to the admiring gaze; whilst the *Flower of the West Wind* (*Zephyranthes candidus*) shows its masses of white to such perfection, as to leave us unsurprised that the river on whose banks it was originally found should have received the Spanish appellation of “La Plata.”

Many are the beauties I have left unnoticed in this short encomium of these objects of attention mingled with neglect, *Anemones* and *Ranunculus* to wit. Bulbs are for the most part admired whilst in flower, neglected afterwards, and condemned as difficult to manage. I might have expatiated more largely on their attractions, but it is not on limited space nor in a limited portion of time this is to be done; and I might be suspected of being more correct in precept than example, if I gave instructions to restrain the passion as to TULIPS, and allowed the objects of my love to make me unlimited in their praise.

That bulbs might be cultivated to a greater extent advantageously, and very much to the decoration of our gardens, I am persuaded. I could meet many of the objections which might be raised against them. Don't think me vain, reader; I would meet, I should have said. Objections are very often met in a very unsatisfactory manner, excepting as far as the individual meeting them is concerned. I have long practised and enjoyed the cultivation of bulbs, and find the pleasures attending it to be continual, inasmuch as I find that with care they may be made to last all the seasons through, and some may be had in bloom *every month* of the year.

REMARKS ON LANTANA SELLOVIANA.

BY MR. GEORGE HARDING, DUNHAM-MASSEY PARK, NEAR
ALTRINCHAM, CHESHIRE.

THIS *Lantana*, although a stove plant, flourishes as a bedder, and in my opinion far surpasses many; so far in comparison as *gladness* is to *sadness*. Having frequently had the pleasure of seeing and observing how beds of it have been admired by visiting parties, one after another, time after time, and all always, or pretty nearly so, in the same tale, such has convinced me of its value as a bedder, and caused me to fall in love with it, as John Derby did with Mary Gold, not to be extinguished for a trifle, Oh, no! but rather advocate a more extensive cultivation in every garden, great and small.

It has the habit of the old but much-admired *Verbenas*, *Sabini*, and *Melindres superb*, and, like them, is suitable for beds *near* walks, to soften off what would appear hard into a finer finish. To manage plants of this, there is no more difficulty than with *Heliotropiums* and *Ageratums*. The treatment is the same, but requires a little more heat than those *during the winter*, to keep them in good health, and in spring, to enable them to push vigorously, so that the plants may be well established previous to planting out.

It forms a bed with little care,
And does bloom freely, wondrous fair.

I must again say it is a great favourite of mine, either grown as a pot plant or a bedder, and therefore offer my brief remarks as an advocate for its far more general culture, hoping some little good will be the result.

A FEW WORDS ON HYBRID RHODODENDRONS.

BY MESSRS. STANDISH AND NOBLE, OF BAGSHOT NURSERY.

A FEW months since a discussion was carried on in the pages of the *Gardener's Chronicle*, relative to the merits of certain races of Rho-

dodendrons. The subject was, in a garden sense, an important one; and we ventured, in taking part in the discussion, to advocate views which from experience we knew to be correct.

The originator of the discussion, "J. R.," endeavoured to prove that grafted Rhododendrons were inferior, for garden decoration, to plants on their own roots; and that seedlings from *R. arboreum* were much to be preferred to any of the numerous hardy hybrids now so generally cultivated.

It appears to us worth while to reproduce here the substance of what we said in reference to the advantages of really hardy hybrids over the numerous progeny so warmly eulogized by "J. R.," which indeed are but seedlings direct from, or but once removed from *R. arboreum*; and especially as the past severe winter has more than verified our opinion, that such plants are worthless for out-door culture. Very many cultivators have yet to learn what the qualities are which a Rhododendron for successful cultivation in the open ground should possess. We believe we shall be doing good service in giving that information.

The hybrid Rhododendrons now so generally grown are from crosses and intercrosses between the Indian *arboreum* and some hardy kind, as *ponticum*, *catawbiense*, or *caucasicum*; with these materials the hybridizer has produced the greater part of our innumerable cultivated varieties, and which are every year being added to. Nor must it be supposed that the varieties which we already possess are merely augmented in number by such additions. On the contrary, some desirable quality, either in the shape or size of their flowers, or in the brilliancy of their colours, or plants that bloom at an earlier age and in greater abundance, are some of the advantages which are constantly being obtained; or a combination in the same plant of qualities previously existing in separate ones, or perhaps a more hardy constitution is infused into a particular kind; at all events, with each addition to the number of existing kinds, the aim is to produce and to perpetuate some desirable quality or qualities not previously obtained.

Now it is well known that seedlings from, or even once removed from *R. arboreum* are not suited for general culture. We have nothing to say against the beauty of their flowers, for they are undoubtedly very attractive; but as they are generally produced very early in the spring, they are in the majority of seasons, and in the absence of artificial protection, much damaged or wholly destroyed. However much the advocates of these early blooming plants may write or speak in their favour, we know too well that the delicate petals of a Rhododendron cannot be preserved in beauty when subjected to the influence of cutting winds, driving rains, and a temperature of eight or ten degrees below the freezing point in March or April.

We are frequently told as a piece of valuable information that, in the garden of Mr. So-and-so, there is a magnificent hardy Rhododendron,

with deep red or crimson flowers, which are generally in full bloom in February or March. Sometimes we hear of these prodigies in January, when the season has been very mild; and such information is usually followed by a hint that it would be much to our advantage to make interest with the fortunate possessors of such treasures for a plant or two of the kind.

Sometimes we are induced to have a peep at these prodigies; not for our own gratification, however, for we are always well prepared for the kind of exhibition that awaits us. The plants are generally surrounded by an ugly framework of poles and rods, with an addition in the shape of a collection of old mats, pieces of carpet, scraps of canvas, and a bundle or two of straw, lying at hand in a convenient corner, to protect with in frosty nights (and in the day too, when cutting winds and pelting rains prevail), forming altogether by no means a gardenesque scene. But of course that is of little consequence; doesn't the plant live in the open air and bloom in winter?

Now we simply ask what are the advantages which these plants possess over hardy and free blooming hybrids? We confess not to perceive their superiority in any one particular. To enable the reader, however, to form a just conclusion of their respective merits, we will place their prominent characteristics side by side.

Seedlings direct from, or but once removed from Rhododendron arboreum.

They never bloom till they are twenty years old, and then very sparingly.

In the majority of seasons, and especially if the early part of the year is mild, the flowers, in consequence of being produced then, are destroyed or much damaged by wind, rain, and frost, which invariably follow.

The flowers are usually of a very rich colour.

In very severe weather, like that of the past winter, the plants themselves are killed or damaged.

Garden hybrids; the advantages of which we are advocating.

They bloom abundantly, and when not more than three or four years from seed.

The flowers never get cut off by frost; and, from being produced after spring has fairly set in, they are not liable to damage from frost or rough weather.

The various kinds produce flowers of the richest as well as the most delicate tints. Deep crimson and pure white, with all the intermediate shades, may be found among the plants in cultivation.

The plants are not damaged by frost.

It gives us great pleasure to be able to state that we have succeeded in raising a number of very beautiful white-flowered varieties,

which possess the desirable property of blooming at the same time with the majority of hardy hybrids. All the varieties with white flowers hitherto obtained, bloom either too early or too late in the season to be really effective in the American garden. Those which we shall have to offer will supply the deficiency. Plants will be ready for delivery next season. We will add that their flowers are very large, and of good form and substance. The trusses too are very fine; and altogether these varieties are much superior to any other hardy white Rhododendrons in cultivation.

It will thus be seen that these much-vaunted tender plants possess not a single desirable quality that is not participated in by the hardy hybrids; and that the latter have very many sterling merits peculiarly their own. As we have before observed, we confess that the flowers of these first hybrids are very beautiful; but we cannot yield our opinion that the plants are, for general cultivation, all but worthless.

Although so much has already been done—so many valuable points gained and secured by hybridizing the Rhododendron—we may confidently look for still greater results. In the Sikkim Rhododendrons we have the material for giving new features to succeeding crosses. In fact, we now possess a large number of plants, the result of hybridizing, between our best hardy hybrids and *Edgeworthii*, *Dalhousie*, *ciliatum*, *glaucum*, etc.; amongst which we believe there will be found some very remarkable kinds. Then from *fulgens* and *Thompsonii* we shall obtain brilliancy of colour, rivalling even *Arboreum* itself; while *Wightii* will contribute a yellow tint, and *Hodgsonii* the beautiful form of its individual flowers, as well as that of its fine compact truss. These are a few of the features which we shall doubtless derive from the Sikkim Rhododendrons; and many other species, not named here, present equally desirable and, doubtless, obtainable characteristics.

But there is one feature belonging to them which we have not named—their *fragrance*. To the very beautiful *Edgeworthii* this is awarded in a striking degree. So powerful is it, indeed, that one or two open flowers will impregnate the atmosphere of a large house. If we succeed, and doubtless we shall, in imparting this quality to our hardy kinds, the Rhododendron will then indeed justly claim the title of the queen of hardy plants.

TREATMENT OF THE BEST GREENHOUSE PLANTS.

BY MR. THOMAS SPEARS, GARDENER AT AYLAND ABBEY.

HAVING noticed that a correspondent recently solicited the practical treatment of the best greenhouse plants, induces me to forward the following as a commencement; a continuation will be sent for each successive month, till the best are completed.

Pimelia.—This handsome family of plants will, with ordinary care,

grow and flower freely; and few plants better repay the cultivator for his care and trouble. Use, when potting (which should be done early in spring), some good turfy peat, well broken with the spade, but not sifted; mix with it a good quantity of sand, if it do not contain it already. When potting, take care you do not injure any of the young fibres. Drain the pots well, which should not be over-large; place a little mould over the drainage, then place the plant in the pot, and tightly press the mould between the old ball and the pot; if the mould is quite dry, which it ought to be, it cannot be pressed too tight; if a plant is loosely potted, and holes left between the old ball and the pot, the plants never thrive well. When potted, give them a gentle watering, and place them in the greenhouse, where they can have plenty of light and air; and never, on any occasion, should they be crowded among other plants, but should stand perfectly free. They also require to be kept in the house during summer, and to be shaded a few hours each day from the powerful rays of the sun. Cuttings simply prepared, planted in sand, and covered with a hand-glass, placed in the propagating-house, will root freely. *Pimelia decussata superba*, *longifolia*, *glauca*, *hispida*, *Hendersoni*, *spectabilis superba*, are very fine plants.

Gardenia.—Most of this genus are hothouse plants, except two species, namely, *G. florida* and *G. radicans*, which are best kept in a cool pit, from the time they go out of flower till it be desirable to make them form flower-buds for the succeeding season, when they should be shifted into fresh peat mould (sandy peat suits them best), plunged, or rather set, on the surface of a *pretty strong bottom heat*, a *moist steam heat* being kept up in the pits, and the lights kept rather closely shut. They will, by this means, show abundance of bloom buds and beautiful fresh foliage; and when they are just about coming into bloom, if removed to the greenhouse, they will continue longer in flower, and perfume the house with their delightful fragrance. They are readily propagated by cuttings of the last year's wood, planted in very sandy peat, without glasses, in a humid, rather warm atmosphere. *Gardenia florida* and *radicans* are the only greenhouse species.

Struthiola.—This pretty genus of Cape plants has of late years been rather neglected. It is a fact too generally known, that many of our old beautiful plants are nearly lost sight of; while plants much inferior to them are substituted in their stead, merely because they are new. The subject of this remark I have with pleasure seen grown to perfection in a few collections. The soil that suits them best is equal parts of good fresh loam and peat, with a little sand, sifted and well mixed together; drain well when potting, and make the mould firm about their roots, as recommended for *Pimelias*; keep them in a light and airy part of the greenhouse during summer, and never place them out of doors, as it is almost sure to kill them, they being very delicate plants, particularly *S. erecta*. In winter, they require to be kept in a light and airy part of the house, per-

fectly free from damp, as damp is almost sure to kill them : very often half the plants will damp away. This is frequently the case with *S. erecta*; but if potted, and carefully managed, they will soon grow and flower freely. Cuttings placed in sand, much in the same manner as Heaths, will root freely. About the middle of January is the best time to put them in, as I have found it difficult to propagate some of the species at other seasons. *Struthiola erecta*, *ovata*, *virgata*, *pubescens*, and *tomentosa* are the best, and bloom freely ; some are fragrant too.

Leschenaultia.—The four species of this genus with which I am acquainted are free growing and free flowering plants, and will succeed admirably potted in sandy peat and placed in the greenhouse, and attended to like *Struthiolas* and *Pimelias*. A few may be turned out of doors with the miscellaneous greenhouse plants during summer. I have had them also to grow and flower freely, turned out of their pots, into clumps, in the flower-garden, where they look indeed both neat and pretty ; though it must be admitted they succeed, at all seasons, best in the greenhouse, as it seems to be their proper habitation. Cuttings of the half-ripened wood, prepared and put in sand in the same manner as Heaths, put in at any time during summer, in a cold frame, and not covered with glasses, will root freely. *Leschenaultia formosa*, *Baxteri major*, *biloba grandiflora*, and *biloba splendens major* are the best, and deserving a place in every greenhouse. The fine blue flowers of the *bilobas* contrast beautifully with the scarlet and orange colours of the other kinds. All are profuse bloomers, and the plants are neat.

REMARKS ON SALPIGLOSSISES.

BY MR. WILLIAM RENDELL, FLOWER GARDENER, GRANGE HOUSE,
NEAR MANCHESTER.

FOR the information of such of your readers as may be desirous of cultivating this singularly beautiful family of plants, I now, agreeably to a promise, send you an account of a method practised here, which has uniformly succeeded, to the admiration of all who have seen them.

Early in March I sow the seed, covering it about one-eighth of an inch, in wide-mouthed and hollow pots, well drained, in a compost of light yellow loam and heath-mould in equal parts, adding about one-sixth of fine white sand, and place them on a shelf close to the glass in the stove (a cucumber bed might do, but, on account of the damp there, I prefer the stove), watering with a fine syringe, so as to keep the soil just moist. As soon as they have four leaves each, I pot them into sixties, one in each, in the same compost, only adding a little fine vegetable mould, taking care to drain well with broken pots about the size of peas. I place them again on the shelf before mentioned, shading them until they can bear the light without flagging.

As the plants advance in growth they are potted into larger pots four times. I flower them in pots about six inches wide and eight deep. To cause them to flower strong, *I remove them, after the third potting, into a cold frame* facing the south, and on all fine days expose them, by drawing off the lights, to the full air and sun. This makes them grow stiff and bushy. When the greenhouse plants are removed into their summer situation, I give the *Salpiglossises* their last potting, and take them into the greenhouse, giving every day plenty of air, and I find they flower much finer for the previous exposure.

Salpiglossises will grow and flower in the beds of the flower-garden in a satisfactory manner, provided they are planted out from the pots about the 1st of June, in rich *dry soil*, and a *sheltered situation*; but in my opinion, and my success bears me out, the situation to show them to the greatest advantage is in the greenhouse, amongst Cockscombs, Balsams, Achimenes, Coccinea, and others, with some species of Gloxinia. There they will flower in profusion, and with proper management produce seed in abundance. Their large and beautiful yellow purple, sulphur, lilac, white, and blue flowers, handsomely striped and spotted with other colours, are exceedingly ornamental.

I usually sow a little seed in September, for the purpose of having plants to bloom *early* the following spring and summer. As soon as strong enough to pot off *singly*, I do so into small sixties. I keep the plants through winter in a cool *but dry* pit-frame, giving them an airy situation, so they are not *drawn up weakly*. Care is taken not to water over the tops during winter, or they will probably rot. In February I repot each plant, and use forty-eight-sized pots, a liberal drainage, and rich compost. These plants usually begin to bloom the first week in April, and continue in great beauty till the end of July, when the *spring-sown* plants are beginning to bloom. Some of the smallest of the *autumn-sown* plants may be kept in the sixty-sized-pots till the end of April, and then be turned out with entire balls into a bed or border in the flower-garden, giving a little protection overhead, if weather be cold, by a garden pot being placed over each during night. I have had magnificent beds of them blooming from May to October. A goodly number of *varieties* are exceedingly handsome and interesting. The plants are usually from a foot to half a yard high.

CYCLAMEN PERSICUM.

OBSERVING one of your readers solicits information on the culture of this fragrant flowering plant, I applied to a friend who grows it extensively, and blooms it with much more vigour and profusion than I ever saw elsewhere, and he supplied me with the following particulars.

The *Persian Cyclamen* is very easily injured by wet, and it cannot be kept in a state of vigour for any length of time, unless it be kept quite dry during its season of repose; and on this account the tubers should be taken up as soon as it has done flowering, and kept out of the ground, like the bulb of a fine tulip, till the season for planting (September) returns. When the plant has done flowering, which will generally be about May, the quantity of water should be gradually diminished, till at last the earth becomes quite dry. The tubers should then be taken up, and laid, with the fibrous roots uppermost, to dry. When these have withered, they should be rubbed off, and the tubers kept quite dry in a warm place till the beginning of September. They should then be planted (care being taken not to bury the crown of the tubers), and regularly watered; being kept as warm as possible till the leaves have expanded, and the flower-buds have formed, when the plants should be placed in a cool, airy situation to flower. Where there is a hotbed frame, the pots in which the plants grow may be plunged in that; and where there is not, they should be kept in a warm room. It has been already mentioned that the tubers should not be entirely buried in the soil; in fact, they should be only lightly put in, the greater part appearing above the surface. The pots should be well drained, a layer two inches thick of broken pots, or, what is better, of cinders, being placed at the bottom. The soil should be loam, mixed with thoroughly decayed leaves, or part of an old hotbed. The plants should be regularly watered; twice a day when the weather is clear and dry, and once when it is moist or cloudy; but the water should never be suffered to stand in the saucers, the saucers being emptied as soon as the water has run into them. When the leaves have fully expanded, the plants should be allowed as much air as the weather will permit, to prevent any danger of their damping off.

To raise young plants, the seeds should be sown as soon as they are ripe, and the young plants should not be transplanted till the following April. They should be kept in a dry, warm, airy situation, and have very little water during winter; enough to prevent the fibrous roots from withering is all they require. In April the tubers should be taken up, without injuring the fibrous roots if possible, and replanted in separate pots, well drained, or in a bed in the open ground. The latter plan is best where the situation is dry, as it strengthens them very much; but care must be taken to cover them with a hand-glass if the weather should be cold and wet, though in fine weather they should have as much air as possible. In September the young plants should be taken up or repotted for the winter, and, if kept warm, and nursed carefully, they will probably flower the next spring.

AN EFFECTIVE ARRANGEMENT OF TREES & SHRUBS.

BY A NORTH-COUNTRY LANDSCAPE GARDENER.

IF Yews be planted in proximity to a mansion, for the sake of valuable shelter from bleak winds, they should not assume a prominent position, but should be interspersed with groups of *Weymouth Pine*, and others of recent introduction into this country, Bay, etc., and be faced with Laurels of luxuriant growth. By such contrast, the gloom of their dingy leaf is relieved with vivid and glossy green; or, if the contrast appear too strong, it may be mellowed by blending *Portugal Laurel* and similar new evergreens in an intermediate position. In short, the recommendation cannot be too frequently reiterated, to substitute a studied assortment of tints for tasteless indiscriminate admixture. Let but the pictorial artist be permitted, or the amateur condescend, to transfer his principles of taste, the one from his easel, the other from his gallery, to occasional superintendence of English landscape gardening, and he would contribute to the production of a living vegetative picture, constituting incalculable improvement in style, and commanding inevitable commendation from the spectator of cultivated taste. Nay, pleasure-grounds thus constructed would excite universal admiration, and impart universal gratification. Picturesque effect, copying and harmonising with natural scenery, elicits pleasurable emotions, even in such as "know not why and care not wherefore." But for accomplishment of such an important desideratum, science must be suffered to acquire unlimited confidence, in exercise of control; while prejudice must cease to plead for senseless "custom, more honoured in the breach than in the observance." An individual proprietor, or a public association, might rest assured of the anticipation of a result decidedly warranting the experiment.

In introducing the topic of evergreen trees for formation of a foreground, it may strongly be recommended, while collecting perennial foliage of every species, to permit each variety of the beautiful Hollies to predominate. Single or combined, from elegance of shape, delicacy of leaf, and duration of mantling, they constitute an embellishment almost unparalleled, yet too frequently neglected. Of faster growth than the evergreen Oak, it attains expansion competent to the gratification of the painter's eye, with not less certainty, in the ordinary calculation of life's duration, to please and profit posterity. It should, then, on various accounts, abound in the proximity of a decorated mansion, blended with masses of Bay, backed by Deodores Cedars, Cypress, Yew, and Pinaster, and faced with Laurel, Laurustinus, Portugal Laurel, Privet, Phillyrea, Arbutus, with other flowering or variegated shrubs:

In similar relative situation, but in prominent advance from trees

and unblossomed shrubs, flowering evergreens should invariably rank. Defying "the icy fang and churlish chiding of the winter's wind," the gay, cheering, precocious *Laurustinus* anticipates the lingering arrival of an English spring. Tenacious of florage and permanently retentive of foliated decoration, it is entitled to numerical predominance over every blossoming shrub. By seasonable intervention and flowering profusion it compensates for temporary diminution of ornament, in other component ingredients of a shrubbery, thus transferring to nipping winter's gloom the exhilarating semblance of summer's embellishment. Productive of such interesting impression in pleasing the eye, it certainly merits conspicuousness by prominent position.

The *Arbutus* is a shrub peculiarly elegant and eligible, from perennial decoration, rapid growth, and superior beauty in shape and tint of leaf, from delicate blossom, and glowing berry. If suffered to remain unpruned, by gaining height, it becomes hollow and leafless beneath, retaining, like other evergreens, only two years' leaves, except about midsummer, when the third year's are annexed, some weeks previous to the decay of the first. If not surrounded by evergreens more stunted in growth, for concealment of its lower leafless branches, it should biennially be deprived of a few long shoots, by application of the pruning knife, the shears being calculated to render a shrub hideously cabbage-poled. Any shrub judiciously pruned will retain resemblance of its natural form. Artificial treatment should be studiously disguised, and interposition of control be invariably concealed.

The *Phillyrea* presents striking contrast to the gay or gaudy display of flowering shrubs, being characterised by singular chasteness and unobtrusive simplicity. It is of intermediate tint, diminutive leaf, and moderate growth; consequently is precisely adapted to an advanced position. It will there present a striking contrast to the imposing glare of variegated shrubs, whether *Holly*, *Aucuba*, or others of similar class. Here, too, that lowly, yet cheering harbinger of spring, the *Mezereum* should rank, interspersed with contemporaneous masses of *Hepatica*, snowdrop, crocus, red daisy, and other vernal flowers of the hardy herbaceous class. The *Cypress* is adapted, by its taper form and elevation, to relieve a structure. The *Pyracantha*, *Pomegranate*, *Trumpet Pomegranate*, *White Jasmine*—but paramount to all, the elegant *Tamarisk*—supply ornamental covering to a wall. In a sheltered nook, even these may be surpassed by the beautiful single-blossomed *Myrtle*. From mildness of climate, it abounds in Devonshire, perhaps in no instance so luxuriantly as in the garden of the clergyman at King's Kerswell, where it acquires considerable size detached from a wall, as well as height when attached. The front of a house at Bishop's Teignton has long been covered to the top by *Myrtles* of forty years' growth, protected from the easterly wind by a wing, and from the westerly by an equal defence, with the advantage of a southern aspect. I recollect being delighted with seeing a

brick wall, nine feet high and about a hundred yards long, *entirely covered* with these charming plants; the beautiful neat *evergreen foliage* was remarkably pretty at all times, and during the *summer* there was a profusion of flowers. The plants did not require any protection in winter, though the situation was in a northern county. The garden was in an *elevated* part of the grounds, and had a *dry bottom*. The face of the wall covered had a south-eastern aspect, but well sheltered by adjoining plantations.

OBSERVATIONS ON SOILS.

BY MR. WILLIAM HEDGES, ST. JOHN'S WOOD, MIDDLESEX.

It is now the opinion of some of our finest florists that a really sound loam, of velvety softness, composed chiefly of extremely fine dun-coloured silex, alumine, pale oxide of iron, and about six per cent. of chalk, all blended in such proportions by nature as perfectly to balance each other, is the staple earth of floriculture; we may add, that a handful of such a loam, if taken up and pressed strongly together, will break and separate entirely on falling to the ground; any strong-rooting vegetable, stove plant, pine-apple, melon, or flower shrub that does not require moor-soil, will flourish in it and be in health; but that if the loam be defective, it is far more safe to employ two or three year-old leaf-soil, with a good quantity of pit-sand, and occasionally some heath-mould, making up by pressure of the hand what the soil wants in solidity. In this soil all the Gloxinias, the Pelargonias, Calceolarias, Fuchsias, and many other plants, will grow freely with deep verdure of foliage; but it must never be permitted to become quite heart-dry and parched. I may add, also, that the Thunbergias will prosper in it, though not to such an extent of broad, deep foliage as in true peat. The mention of this word demands immediate explanation. Peat is now in the mouth of every one, as "bog-earth" was thirty years ago, and it occurs in all the pages of floriculture; but in no one instance is it correctly used, nor do the parties employing the term intend what they express. Peat is a short, easy word, and being used conventionally, passes for the heath-soil, or moor-earth, of Bagshot Heath, Wandsworth Common, or Hampstead Heath—the top spit, in a word, of a heath-common; which consists almost entirely of white, silicious sand, say 90 per cent., with some black vegetable remains of heath or short grass, and decayed twigs; the Prussian tests (ferro-cyanurets of potassa and soda) detect in it also a trace of iron. But peat, true peat of the turbary or peat bog, is a very compound substance, more approaching to a sodden marl than anything else. It was thus described by Davy:—"The earthy matter of peats is uniformly analogous to that of the stratum on which they repose; the plants which have formed them must have derived the earths that they contain from this

stratum. Thus, in Wiltshire and Berkshire, where the stratum below the peat is chalk, calcareous earth abounds in the ashes, and very little alumina and silica. They likewise contain much oxide of iron and gypsum, both of which may be derived from the decomposition of the pyrites (sulphur and iron) so abundant in chalk. Different specimens of peat that I have burnt, from the granite and schistose soils of different parts of these islands, have always given ashes principally silicious and aluminous," etc.

A specimen of very old Berkshire peat, exposed twenty years to the air, was of close texture and grey-black; not a particle of sand could be seen in it. When broken and comminuted, *Thunbergia alata* throve in it with a luxuriance that nothing could surpass. But peats are not to be trusted; therefore we must apply to leaf-mould and heath-soil, to bind which a tenth or less portion of finely powdered pipe-clay (which consists of pure alumina and some silex extremely fine, if we mistake not) might be blended with safety and effect.

Of leaf-mould, one of the best adjuncts to the potting department, a good deal ought to be said and understood. Were it possible, we would always reject beech-leaves and laurel; the former, because they contain much chalk, and the latter because they decompose unkindly. But when we talk of *leaf-mould*, we infer the gradual decay of a wood pile, where all the twigs, amputated boughs, and leaf-clearings of the park and shrubbery are collected. Thus we obtain the decomposed bark as well as leaves, and in the course of three or four years procure ample store of vegetable earth, in three stages of laboration. The first and oldest, an unctuous substance, like old peat, rather brown, the very representative of humus, just fit to go into the earth. The second, screenings of the mass, abounding with much of the same soil, with a considerable portion of half-reduced twigs and stalks. This should stand the seasons of another year. The third, a quantity of the latter substances, and but little reduced vegetable earth. Leaves alone do not produce, by decay, a mould so valuable, nor yet so tractable, as does the wood-pile; therefore we recommend the latter. The quite-reduced three year-old mass incorporated with two-thirds of silver sand forms an excellent substitute for heath-mould.

REMARKS ON ARAUCARIA IMBRICATA.

BY MR. JAMES SMITH, N. B.

THIS very magnificent and ornamental tree not having been noticed in your Magazine, I forward you some remarks upon it, with a view to promote its more general introduction in the grounds and plantations adjoining to or surrounding the residences of our nobility and gentry.

That the *Araucaria imbricata* is one of the most interesting hardy trees that is at present cultivated in British gardens will be at once admitted by all who have any idea of its character, or had an oppor-

tunity of inspecting a good-sized plant, such as that in the Royal Gardens at Kew. The native country of the *Araucaria*, is the Andes of South America. It is found in large forests in the mountains Caramivida and Naguellenta, in Chili. The general aspect of this part of the country is rocky, and in some parts boggy. The latter circumstance is owing to the abundance of snow and rain which falls in these regions. The Corcovado, a mountain in the vicinity of Chiloe, is said to be studded from its foot to the snow line with this beautiful tree; it has attracted the attention of various travellers, but none has invested it with more interest than Dr. Poeppig, whose notice of it, in his travels in the Peruvian Andes, as quoted in the companion to the *Botanical Magazine*, is very interesting, and will well repay a perusal. From this paper I make the following quotation:—"When we arrived at the first Araucarias, the sun had just set, still some time remained for their examination. What first struck our attention were the thick roots of these trees, which were spread over the stony and nearly naked soil, like gigantic serpents, two or three feet in thickness; they are clothed with a rough bark, similar to that which invests the lofty pillar-like trunks of from fifty to two hundred feet in height. The crown of foliage occupies only about the upper quarter of the stem, and resembles a large depressed cone. The lower branches, eight or twelve in number, form a circle round the trunk; they diminish till they are but four or six in a ring, and are of more regular formation, all spreading out horizontally, and bending upwards only at their tips. They are thickly invested with leaves, that cover them with scales, and are sharp pointed, above an inch broad, and of such a hard and woody texture, that it requires a sharp knife to sever them from the parent branch. The general aspect of the *Araucaria* is most striking and peculiar, although it undeniably bears a distant family likeness to the *Pinus* of our country." The same interesting writer, in describing its properties and uses, says, "The *Araucaria* is the Palm of those Indians who inhabit the Chilian Andes, from latitude 37° to 48°, yielding to those nomade nations a vegetable substance, that is found in the greater plenty the farther they recede from the whites, and the more difficult they find it to procure corn by commerce. Such is the extent of the Araucarian forests, and the amazing quantity of nutritious seeds that each full-grown tree produces, that the Indians are ever secure from want. A single fruit (*Cabez—a head*) contains between two hundred and three hundred kernels, and there are frequently twenty or thirty fruit on one stem. The kernels are about the shape of an almond, but double the size; towards the end of March the cones drop from the trees, and in the vast forests which they form, the seeds strew the ground in great quantity. They are often brought to Valparaiso for sale, and hence the occasional importations of small packages to this country. The seeds are, however, mostly baked, or are otherwise too old to vegetate after reaching this country. The *Araucaria imbricata* is one of the hardiest of

evergreen trees, certainly not less so than the Scotch Fir. I have seen plants of it which have stood without injury for twelve successive winters. I refer to the exposed and solitary situations in which ornamental trees are usually placed. The sexual organs are produced on distinct plants, that is, the same tree does not produce both *male* and *female* flowers; the height of the female tree is reckoned at about one hundred and fifty feet, that of the male about fifty feet. To persons who have room and opportunity, we do not know of a more interesting and noble object than the *Araucaria*. It thrives, too, in the open air, without any protection, even in the northern climate of Scotland, so that all doubt about its *hardiness* is now removed.

DESIGN FOR A FLOWER GARDEN.

BY THOMAS RUTGER, ESQ.

THE garden herewith delineated, it will be perceived, has two principal entrances, one on the east side and the other on the west; small doorways are also shown at the south-east and south-west corners. The irregular border at the south, having a northern aspect, is intended for American plants, with a grass verge to continue on to the entrances on the east and west. On the north of these entrances the borders are intended to be furnished with choice hardy shrubs, parts of which may be devoted to such as have been acclimatized, and such as require a warm and sheltered situation. The pond in the centre should be furnished with a handsome fountain, and if a good supply of water should be available, the four oval basins might also be ornamented with fountains of various devices, such as dolphins, etc. The circles, two at each end, are intended for statues or vases, and the circles in the scrolls might also be furnished with statues, which would have a considerable effect by way of embellishment. The portions of grass, it will be seen, are dotted with shrubs, which should be of the most choice kinds. Should orange trees be introduced into the conservatory during the winter they can be placed on the grass, between the shrubs, during the summer, when their appearance would add much to the beauty of the garden. The wall borders, one at each end of the conservatory, are intended for handsome choice creepers. The semicircle at the north part of the conservatory may be fitted up for a sitting or reading apartment, over which there may be a dome with stained glass. Sites may be fixed upon in various parts of the garden for covered seats or alcoves.

BALSAMS IN THE OPEN AIR.

WHEN we once take a thing in hand, we never give it up till there

is no hope. We have great affection for Balsams, and we advise every Society that pretends to encourage flowers, to give prizes for the best pair, or four, or half dozen of these very beautiful subjects. To produce these in perfection, we all know there should be plenty of heat, light, air, moisture, and good rich soil, and that all these cannot be secured without glass structures of some kind; but we have regretted that so beautiful a flower should be beyond the reach of the humble gardener, and, in fact, confined to those who had green-houses or stoves, hotbeds or pits; and this present season of 1855 we determined to see what could be done in the open ground. We have raised some in heat, and after a month under glass, set the pots out of doors—these have come to perfection. They have grown strong, healthy, bushy plants, far better than anything exhibited at the best of the shows; some sown on a warm border out of doors, but totally unprotected, have grown as handsome, but not so large, nor were they so forward; it is only necessary to attend to watering, shifting to larger pots as soon as the roots reach the side, and placing them to get all the sun, all the air, and the most vigilant care in watering. And now for a few hints as to management. As soon as they show their buds on the middle stem, let them be picked off constantly, until the side branches grow out and show theirs; then merely pick off the largest buds as they come forward, until all the forwardest buds on the middle stem are the same size as the forwardest on the side stems, when they may be allowed to bloom, and the flowers will come all over the plant and alike in size. But all this time they must be constantly shifted to larger pots, as soon as the roots reach the sides of those they are growing in. When you sow on the open border they will not be up till May, and they may be potted, first, four or five in a four-inch pot, close to the side; in this they may grow till they have half a dozen leaves, when they must be potted singly in the centre of four-inch pots, keeping the seed-leaf an inch above the soil. When the roots reach the side, put them in six-inch pots, from those to eight inch, and if you like to keep on, go to ten inch, and a foot. There is no limit to the growth of a Balsam when we have all the means at hand; but, out of doors, they should be allowed to flower as soon as the buds can be got alike in size all over. We have some hundreds of Balsams, not more than twelve or fifteen inches high from the pot, quite a foot across, and in full bloom all over, that have never been under glass since their first potting off in single pots, and we have now convinced ourselves, that in fine seasons, they make finer objects out of doors than any we saw all the season cultivated under glass and exhibited at shows. If, when they are coming into bloom, there were at hand the means of shading, the flowering season would be greatly prolonged; and if very heavy rains come on, the plants should be protected, if possible; but ours had all the rain, sun, and wind, and were nevertheless good. We have mentioned these circumstances to show that people who have no glass may cultivate the Balsam with success, and we have no less than eighteen

very distinct varieties to speak from, not one of which has suffered from the weather of the present season. The most remarkable of these are a scarlet flake, as double and fully as large as a Carnation; a purple flake on a pure white ground, and a white ground speckled all over with minute splashes of rich purple—these three we have had two years, but so difficult to seed, in consequence of their doubleness, that we have not had till this season a grain more than we wanted, but they are fine additions. They will enrich our purple and red classes very much.

LINNÆAN LESSONS OF BOTANY.

THE twelve main terms of Botany:—1. On the outside of the Primrose a *green* sort of cup is seen, in which the *coloured* part stands as an egg does in an egg-cup. This the learner must call the *flower-cup*, but botanists call it by the Greek name—*Calyx*.

2. Within this *flower-cup*, or *calyx*, which may be cut off to show what it contains, is seen the coloured part of the flower—the part, I mean, which is yellow in the Primrose, blue in the Violet, and red in the Rose. The learner may call this coloured part the *blossom*, but botanists call it by the Latin name—*Corolla*.

3. The blossom, or *corolla*, may now be cut off, when it will be seen in the Primrose to be of one piece, while in the Rose and other flowers it is of several pieces or leaves. The learner may call each of the pieces a *flower-leaf*, but botanists call it a—*Petal*.

4. Within the flower-leaf, or *petal*, in the Primrose, five small bodies may be seen standing round in a circle, with little tips somewhat shaped like a barleycorn, though not nearly so large, and a slender stalk to support these. Each of the five small bodies the learner may call a *male*, but botanists call it a—*Stamen*.

5. The male part, or *stamen*, as we have seen, has two parts, the under part and an upper part. The learner may call the under part the *stalk*, but botanists call it the—*Filament*.

6. The learner may call the upper part of the male the *tip*, but botanists call it the—*Anther*.

7. When the tip, or *anther*, of the male is broken, or bursts, as it always does of itself as soon as it is ripe, a coloured powder is seen, which the learner may call the *tip-dust*, but botanists call it—*Pollen*.

8. When the calyx, the corolla, and the stamens are all cut away, the centre part of the flower alone will remain on the top of the stem. This part the learner may call the *female*, but botanists call it the—*Pistil*.

9. The female, or *pistil*, may be said to consist of a base, a middle, and a top. The base of the pistil is always more or less bulged out; and from its containing the seeds, the learner may call it the *seed-organ*, but botanists call it the—*Ovary*.

10. The middle of the pistil the learner may call the *pillar*, but botanists call it the—*Style*.

11. The top of the pistil the learner may call the *summit*, but botanists call it the—*Stigma*.

There is only one more term which I shall mention at present, and which applies to a peculiar sort of leaf, sometimes, according to the sort of plant, found on the flower-stem, often at the base of leaves, and sometimes surrounding fruits as the calyx does the corolla. This, which botanists call by more than one name, according to its situation, I shall, for the ease and convenience of the learner, call the *Scale*.

It will make it easier for the learner to master these dozen terms, to consider the several parts as placed in five circles, one within the other.

The dozen terms having been got perfectly, by going over them once and again, as well as the order in which the parts of the flower are placed on the five circles, the learner may next be taught how to find the class in which any flower is ranked by Linnæus.

HEATING GREENHOUSES WITH GAS.

Four years ago we made some remarks on this subject, and suggested its adaptation in connection with the hot-water system. Soon afterwards the principle was tested. A gentleman in London had a large room warmed by means of hot water, conveyed in three-inch bore piping, the water being heated with gas, which succeeded most satisfactorily.

Since that time we have had many inquiries about it, and replies have been sent by post, stating “several small greenhouses had been furnished with an apparatus, the water being heated by means of gas; and during the last severe winter, the structures could be kept at seventy degrees of temperature throughout the night.”

Being recently informed that some improvements in this mode of heating the water with gas had been made by a gentleman in London, we availed ourselves of the privilege to see its construction for the purpose of heating a medium-sized lean-to greenhouse, and the proprietor informed us that it now answered every purpose he desired, and that the average cost of the gas during winter was only twopence halfpenny for twenty-four hours. The apparatus consists of water tank, boiler with ring jets underneath, and the usual three-inch bore pipes, flow and return, which are fixed along the front, end, and back, under the stage. This improved apparatus was constructed by a person in London, and at a *very reasonable cost*.

The advantages of using gas are several, viz., there are not any coals used, nor the annoyance of a cloud of smoke, or any dust arising from ashes to cause the pores of the leaves of plants to be choked up

therewith. It is also readily applied for heating the water, and with the kind of boiler used it is quickly done, and any person can set it in operation. If the weather be severe, the gas can (to any degree required) be kept burning through the night, and thus the temperature may be kept up to any heat desirable, without risk of injury resulting in any way.

There is not a necessity for a late attendance at night, or early in the morning, to keep up the heat, as is so frequently to be done when coal or cinder fires are used. Nothing can be more convenient and easy than this system of heating with gas; its cheapness and cleanliness are additional advantages.

It is known that attempts have been made to heat greenhouses with *gas-warmed* pipes instead of *hot water*, but it did not succeed, as it was found the gas escaped through the pipes inside the house, and the plants were damaged in proportion; but in the system we advocate, the small water-tank, boiler, access to light or stop the gas, and a zinc pipe to admit of any fume from the gas to escape, are best placed in a case, or shed, outside the house, so that no injury can arise from the gas fumes.

The same principle of heating will be very suitable for pit-frames, conservatories, and other plant structures.

HARDY CONIFERÆ.

LET us fancy what a change the whole face of this country will undergo when the splendid *Araucaria imbricata*, the graceful *Deodar Cedar*, and the many fine Coniferæ of different sorts and various habits, will be luxuriating in the same natural beauty as in their own native homes. The great fear with many is, that they are not sufficiently hardy to withstand the severity of our winters, but we believe this is an objection, in many cases, without reason. With the uncertainty that always exists about the proper management of plants introduced from countries but slightly explored, it is no wonder that a fear of failure should possess the minds of many. When we think of the tropics, we suppose that all vegetation there must be exposed to a bright sky and intense heat. But in such countries, the range of vegetation, naturally adapted for each locality, progresses as the range of temperature, from the sultry valleys to the frigid top of the mountains, extends. Therefore it requires some little experience to adapt the change of circumstances to the constitution of the plant. All plants more or less in infancy require, to a certain degree, a system of nursing. If it is expected that they should be able to bear, without injury, the trying vicissitudes of our climate in a state of infancy, this is unreasonable, for they usually will not do so, until they have acquired some strength and growth to establish themselves in the soil independent of protection. To confine the roots in a pot, and then plunged or covered to the rim in the soil, without further

protection during the winter, is not giving the new arrivals a fair chance to live. The roots being confined in the pot (as the soil in some winters in frozen six or eight inches deep) become frozen, and consequently suffer. To give them a fair chance for their lives, it is necessary to protect them while in pots, and for a season or two after they are transplanted to the situations where they are to remain.

Another important consideration is the situation to be selected, that it should not be too much exposed nor yet too sheltered; but a situation where a good growth may be made sufficiently early to mature the wood before the nipping frosts appear is best. How that should be done is best explained on the general principles applied to the acclimatizing of plants. No practice that we can adopt will change the nature of a plant; but we may be able to influence its susceptibility so far by good management, as to enable it the better to withstand the many atmospheric changes to which it may be exposed. The soil being well pulverized and raised into mounds, about the middle of May, when all danger of frost is over, is the best time for removing them from the pots into the open ground, where they are to remain to ornament the pleasure-ground scenery or park views. The object in planting them on mounds is to produce a good drainage for the roots; the pulverized soil being mulched or covered with the mowings from the pleasure grounds, or with any other litter that is always very easily procured in summer, will prevent evaporation, and the moisture in the soil will be retained for the healthy vegetation of the roots. During the summer, when the days are long, the sunlight powerful, and the temperature high, the force of vegetation is excited to produce luxuriant growth. As the season advances, the days become shorter, the sunlight less powerful, and the temperature lower; a change is produced in the system of the plant, and it gradually subsides into a comparatively torpid state. As the leaves depend upon the influence of heat and light for their excitability, for the proper elaboration of the sap and for their healthy perspiration, when these influences are diminishing the plant is approaching to that state of rest in which it is best able to withstand the severity of the winter; but if the roots are not in a proper state to correspond with the atmospheric influences acting upon the leaves and branches, that balance of power between root and branch so necessary for healthy vegetation is unequal, and consequently unfavourable results may be expected to follow. Although roots may be said to be never entirely inactive, nevertheless their action will, in a great measure, depend upon the active vitality of the leaves. It is principally by the action of the leaves that the roots are excited to absorb nourishment from the soil, but when the power of the leaves to perspire watery matter, and to absorb the nutritious gases supplied by the atmosphere, ceases, the roots gradually and in less quantities absorb aqueous solutions from the soil, to supply the waste produced in the system during the summer and autumn growth of the plant, and to collect a store of organizable matter to supply the demands of the leaves and branches the following spring.

When the roots are surrounded with a superabundance of water, in badly drained soils, they absorb it in immoderate quantities, the vessels of the plant become gorged, the tissues lax, and the whole system disorganized; then they are most susceptible of injury from frosts. It is for such reasons advisable to plant them in open or exposed situations, where their growth would be gradually arrested by the coldness and other atmospheric influences of such situations. The truth of the principle is proved by the fact, that in severe winters the more exposed the plants have been grown the less they suffered, and that, on the contrary, the more they were sheltered, without being protected artificially, the more severely were they injured.

NOTES ON NEW AND SELECT PLANTS.

157. *BOUVARDIA HOUTEANA*.—A very handsome plant, of bushy habit, and a profuse bloomer. The flowers are of a more brilliant scarlet than either *lecantha* or *coccinea*. It is a valuable acquisition for bedding purposes, much superior to any other of the genus. This grown in contrast with the new white-blossomed *B. longiflora*, produces a charming effect. Both are rapidly increased by pieces of the roots, an inch long, being placed flat on the surface of silver sand in a pot, then covered about a quarter of an inch, and placed in a hotbed frame, or similar suitable place; they strike root quickly.

158. *RHEUM ACUMINATUM*. Nat. Ord. *Polygonæ*.—This is the common *Rhubarb* of Sikkin Himalaya, specimens of which are in the Royal Gardens at Kew. It never grows more than three feet high, and has very broad leaves. In its native places it grows among rocks, brushwood, etc., at from 9000 to 13,000 feet above the level of the sea. It produces a large paniced head of flowers, of a bright rosy red purple; very showy. (*Fig. in Bot. Mag.* 4877.)

159. *PHYGELIUS CAPENSIS*. Nat. Ord. *Scrophulariæ*.—This very handsome ornamental flowering plant is a native of Caffreland, at Witbergen, on the sides of streams, where it was recently discovered by Drege. Its appearance is that of a magnificent *Pentstemon*, growing from two to three feet high, shrubby below, but herbaceous above, like the *Pentstemon gentianoides* and its varieties. The flowers are borne in large, spreading, branchy panicles of a pyramidal form. Each blossom funnel-tube-shaped, two inches long, slightly curving upwards, of a rich red-scarlet, yellow in the inside. Its brilliant flowers in panicles, rising near a yard high, produced in such profusion as to render it very ornamental, and highly meriting a place in every flower garden or cool greenhouse. It is supposed to be as hardy as the *Pentstemon*. (*Fig. in Bot. Mag.* 4881.)

160. *BILLBERGIA RHODOCYANEA*. The blue and red *Billbergia*. Nat. Ord. *Bromeliaceæ*.—Probably a native of South America, where this genus abounds. They are fine plants for our stoves, elegant

and interesting. Its pine-apple plant-like leaves grow about fifteen inches long, of a dark green tinged with purple, with slight white lines crosswise, and the terminal part of the leaves are of a pretty yellow-green. The flowers are produced in a capitate thyrus, clothed with numerous *rose-coloured* bracts below the blossoms. The flowers are about two inches long, *rose coloured* in bud, but when perfect, *white*, which gradually passes into blue at the tips. It was received at the Royal Gardens at Kew from Belgium. (*Fig. in Bot. Mag.* 4883.)

161. *SALVIA ASPERATA*. Nat. Ord. *Labiatae*.—Isaac Anderson, Esq., of Maryfield, near Edinburgh, received seeds of this species from Cashmere. It grows about two feet high, erect. The flowers are borne in long spikes, of a greenish-white, each blossom is about an inch long, and about as much across the front. (*Fig. in Bot. Mag.* 4844.)

162. *NYPHÆA BOUCHEANA*. Nat. Ord. *Nymphaeaceæ*.—An hybrid raised between *N. Ortgiesiano-rubra* (*N. Devonensis* of some) and *N. lotus*. The petals of the flowers are of a beautiful light rose colour, with a centre of broad golden-yellow anthers. Each blossom is about eight inches across. It requires the usual stove temperature, and merits a place in every collection of this section of plants. (*Fig. in M. Van Houtte's Flore des Serres*, 1033.)

163. *VESTIA LYCIOIDES*. Nat. Ord. *Solanaceæ Nicotianeæ*.—A very neat, erect, branchy, shrubby, greenhouse plant; a native of Chili, and abounds at Valparaiso. It was long ago introduced into our own country, but is not generally seen in our greenhouses; however, when properly grown, it ranks with the most elegant. The leaves are about an inch long, and half that in breadth, very neat. The flowers are produced in *terminal racemes*, drooping, similar to the common Fuchsias. Each blossom is of a funnel-tube-shaped form, with a five-parted limb (front of flower), an inch and a half long, and the limb an inch across, of a pretty yellow colour. It merits a place in every greenhouse. (*Fig. in Flore des Serres*, 1033.)

164. *RHODODENDRON ROSALBA*.—An hybrid obtained from *R. caucasicum-venustum*. It forms a neat shrub. The flowers are large, bell-shaped, spreading widely with the five front segments; the tubular part is about an inch long, and the five-parted limb two and a half inches across; of a beautiful bright rosy red, with a pure white edging, the tube being white also. Very neat, and requires to be in the cool greenhouse or pit-frame during winter. The leaves are neat, oval, and about three inches long. (*Fig. in Flore des Serres*, 1038.)

165. *GESNERIA DOUGLASSII* (variety *verticillata* of our English gardens).—An excellent figure of it is given in the *Flore des Serres*, 1030. The flowers are produced in a terminal cymose head; the one figured had *sixty-two* blossoms in a single head. Each tube-shaped flower is an inch long, of a rosy red colour, streaked and spotted with dark crimson. It is a beautiful variety, and merits a place in every stove. It increases freely by seeds.

166. *KÆMPFERIA ROTUNDA*. Nat. Ord. *Zinziberaceæ*.—It belongs

to a genus of curious plants, a *stove* herbaceous, and, like the *Crocus*, the flowers spring up and bloom before the foliage appears. Each flower rises from four to six inches high, and is somewhat in form like the Autumn *Crocus*, or between it and the *Iris persica*. The flowers are white and rosy lilac, streaked with a deeper colour; each blossom about three inches across; they are powerfully fragrant, perfuming the air for a considerable distance around. It has been termed the Hothouse *Crocus*, being therein what the *Crocus* is to our outdoor floral collections. It is a native of the East Indies, and blooms for some time during spring and summer. It may be had in bloom at every season, by giving the plants a due rest, re-potting and introducing some into the stove at successive times. It is a most lovely plant, and deserves a place in every stove. It was introduced into England many years ago, but is rarely to be seen at the present period. It may be purchased at a low price. (*Fig. in Flore des Serres*, 1041.)

167. *BILLBERGIA LIBONIANA*. Nat. Ord. *Bromeliaceæ*.—Was discovered in Brazil, in the environs of Rio de Janeiro, by Libon, the naturalist. It is of medium habit, blooms freely, and very handsome. The flowers are produced in spikes; the bracts are a rich *orange-scarlet* colour, very ornamental. The *tube-shaped* blossoms are two inches long, the lower half *white*, and the upper portion a *rich blue*. The colours contrast beautifully. M. Van Houtte has plants of it. It merits a place in every collection of stove plants. (*Fig. in Flore des Serres*, 1048.)

168. *MOMORDICA CHARANTIA*. Nat. Ord. *Cucurbitaceæ*. Syn. *Balsamina indica*, *fructu majore flavescente*. *Amara indica*.—It was originally from the East Indies, but succeeds well outdoors in the warmer parts of Europe, similar to the Gourds, etc. The growth of the plant and its appearance very much resemble our Wild Bryony of the hedges, and must have a similar support or trellis. The flowers are a pale yellow colour. The fruit is egg-shaped, four inches long, and the entire surface much warted; it is of a beautiful orange colour. When the fruit is fully matured the point of it splits into three equal divisions, which extend nearly to the stalk, they then spread out widely, and three rows of somewhat round, large, pulpy, pericarp-like substances appear; they are of a rich blood colour, and produce a striking contrast with the orange exterior of the fruit. It is an exceedingly interesting plant, and in its fruit-bearing condition very ornamental. It would be an object of admiration for the mixed flower-bed or a trellis. (*Fig. in Flore des Serres*, 1047.)

169. *DICRÆA LOBULATA*. Nat. Ord. *Gesneriaceæ*. The *Dicroæas* are a section from the *Gesnerias*, comprising such as *G. bulbosa*, etc., all of which are natives of Brazil. The *D. lobulata* has large heart-shaped leaves, and the *numerous* flowers are borne in a large branchy cymose panicle. Each blossom is about one and a half inch long, of a rich scarlet colour, and very ornamental. It may be procured of M. Van Houtte. (*Fig. in Flore des Serres*, 1042.)

170. *DICŒO-GESNERIA PURPUREA*. Syn. *G. purpurea*.—The leaves are very large, heart-shaped. The flowers are produced in a large terminal cymose panicle, containing sixty or more blossoms. Each flower, wide tube-shaped, is two and a half inches long, of a deep rosy purple, beautifully streaked and spotted with deep maroon-crimson. It merits a place in every stove. (*Fig. in Flore des Serres*, 1046.)

171. *SCILLA NATALENSIS*. Nat. Ord. *Liliaceæ*.—This handsome species is supposed to be a native of Port Natal, from whence it was introduced into the establishment of M. Van Houtte. The flowers are produced in an upright racemous spike, nine or more inches long. Each blossom is about three parts of an inch across, star-shaped, white tipped with pale blue. (*Fig. in Flore des Serres*, 1043.)

172. *CATALPA BUNGEI*, for the first time in Europe, has bloomed at Neuilly, in France, during the past season. It forms a small tree-like plant, with handsome foliage. The flowers are produced in large, terminal, branchy panicles. Each blossom is short, tube-shaped, with a broad divided limb (face of it), a greenish-yellow. The inside, as well as the divisions, are beautifully spotted with brown. It was not injured in the least by the severe weather of last winter.

BRIEF REMARKS.

HORTICULTURAL SOCIETY OF LONDON.—The Council of the Horticultural Society have resolved, as appears by the following statement, to revert to the old system of enlarged Exhibitions in London; and it is some consolation to know that under this system the Society attained its greatest success. It is understood that in consequence of this resolution, a large part of the hothouse collections will be immediately disposed of, so as to reduce the expenses of the Garden, and leave additional funds available for the encouragement and reward of horticultural skill.—

“Horticultural Society of London,

“21, Regent Street, Oct. 23.

“In the Annual Report, made by the Council at the last Anniversary, the attention of the Fellows was directed to the very serious fact that, during the three previous years, the income of the Society had been unequal to its expenditure, and that as much as £1250 had been added to the debt during the year 1854-5. At the same time, a hope was expressed that the causes which brought about so large a deficiency would prove temporary.

“The Council have now, however, with very great regret, to report that this hope has proved fallacious, and that the debt will have been found to be again considerably increased before the close of the present year, if the present establishments of the Society are maintained in their integrity.

“It has been annually shown by the printed Reports that the principal source of income, since the year 1833, from which the garden has been maintained, was the Exhibitions there, the net produce of which was as much as £3024 in the year 1844. This fund has been gradually diminishing. In 1853 it was £1714, in 1854 only £455, and in the present year, instead of yielding any increase, the Exhibitions have been productive of a loss estimated at about £300.

“After giving this subject the best consideration in their power, and consulting Fellows upon whose judgment they are disposed to rely, the Council have arrived at the conclusion that the Garden Exhibitions will not be profitable in future. The distance of

the situation from the metropolis deters visitors from repairing to Chiswick as formerly, when no similar meetings were held in places of more ready access. Nor can it be doubted that the proximity of the great Government Garden at Kew, accessible as it is by railway and water, and with whose attractions it is hopeless to contend, annually renders the Society's Garden of greatly diminished interest. Under these circumstances, the Council have no alternative but to reduce the latter establishment within very narrow limits, if not to relinquish it altogether; and, at the same time, to realize some at least of the valuable property accumulated there towards liquidating the debts of the corporation.

"The history of the Society clearly shows that it was in its most flourishing state in the year 1821, at which time its operations were confined to the encouragement of horticulture by rewards, and the publication of its Transactions, to exhibitions in London, to the distribution of seeds, etc., obtained from its correspondents, and to the maintenance of a small and unexpensive garden. The subsequent enlargement of the Society's undertakings, successful as they have been for a time, have ultimately proved beyond its resources; but the Council hope, and confidently expect, that by reverting to the old system of 1821, the Society may be restored to its former prosperity; and by restricting themselves to the encouragement of its original objects, its utility and popularity may be maintained undiminished.

"The Council are now engaged in a careful consideration of the manner in which these great changes can be best effected, as well as of the alterations which may be consequently necessary in the rate of subscription of the Fellows. Immediately after their plans shall have been matured, they will be submitted to the sanction of a General Meeting. In the mean time, in order not to lose the present season, the Council have ordered an immediate sale of stove plants—the continued cultivation of which, even through the ensuing winter, would cause a needless increase of the Society's debt—and of some other portions of the corporation property, such as Herbaria, etc., which can be disposed of without detriment to the efficiency of the Society.—JOHN LINDLEY, Vice-Secretary."

THE BEST DAHLIAS SENT OUT IN 1855.—*Best Six*: *Pre-eminent*, rich plum purple. *Annie*, beautiful lilac. *Agincourt*, pretty rosy purple. *Lord Bath*, dark maroon. *Ruby Queen*, bright ruby. *Nigger*, nearly black.

2nd. *Cossack*, bright crimson. *Empress*, blush, delicately edged with lilac. *Espartero*, bright red. *Goldsmith*, fine clear yellow; *Lady Folkstone*, yellow-buff, tipped with red. *Rose Unique*, bright rose.

3rd. *Admiral Dundas*, buff tinged with salmon. *Constancy*, yellowish-buff, very distinctly tipped with red. *Diadem*, dark maroon. *Dr. Reed*, dark plum. *Glenlyon*, reddish orange, shaded with buff. *Royal Sovereign*, yellow.

Six Best Fancy Dahlias: *Miss Frampton*, blood red, tipped with white. *Baron Alderson*, scarlet, tipped with white. *Comet*, purple, scarlet and white. *Miss Herbert*, creamy lilac, tipped with white. *Surpriser*, maroon, tipped with white. *Impératrice Eugénie*, white, edged with purple.

NEW SEEDLINGS PROVED IN 1855.—*Orange Perfection*; this is a vivid orange, of medium size, excellent in all its qualities, and the best seedling of the year. *Bessie*, an excellent yellow, and been proved two seasons. *Lord Palmerston*, a rich deep scarlet, and a noble back-row flower. *Lollypop*, superb form, a salmon-buff, above medium size, and very attractive. *Mrs. Wheeler*, rather below medium size, very compact, a rich red, of fine form. *Duchess of Wellington*, good form, well up, great depth, and above the medium size, petal scarcely as good as desirable. *Miss Burdett Coutts*, shaded fawn colour, good substance, excellent cup petal, and medium size, very pretty. *Grand Sultan*, a dark maroon, almost black; it has not first-rate qualities, but still is valuable for a stand. *Yellow Beauty*, excellent form, and compact flower. *Shaded Model*, rose, shaded with pink and carmine, and of good qualities. *Cameleon*, pretty primrose-yellow, sometimes tinged with pink at the edges, and very pretty. *Eclipse*, dark purple, fine form, but by some not thought to be equal to *Pre-eminent*, which is of similar colour.

The following seedlings of 1855 possess merit, but being shown under disadvantages, their real excellences may be much superior. *Archbishop of Canterbury*, dark purple.

Corsair, dark scarlet. *Lady Raglan*, orange-buff. *Reginald*, sulphur, tipped with crimson. *Lord Raglan*, orange-buff. *Tyrian Prince*, dark maroon. Many others have been exhibited, but were of inferior character.—J. W. SMITH.

NEW DAHLIAS TO COME OUT.—**Napoleon*, a salmon-buff, full size, compact, well made, rather of the *Radzville* build, but infinitely better, splendid centre to the last, and good outline, colour quite new; we saw many flowers. **Eugenie*, an indescribable rose, good in all its stages, and, like the above, very constant, because the eye is good to the last; we saw many blooms. *Rosy Duchess* is a vivid rose, and a compact useful flower of striking colour; had we seen half a dozen equally good we should have given a higher character; there was nothing wrong. **Mrs. Wheeler* can be best described by saying it is the best model of a good *Sir F. Bathurst*, but colour red or crimson, we believe (for we saw it by gas-light), an excellent thing on the first rank; best of its class. **Princess*; one of the most lovely rose colours we have, perfectly new and very rich; a bluish tint over a rich laky-pink; good in all its points, and outline above average. **Perfection*, a noble orange, good in all its points, full size and very double; centre for a cupped flower very good, the best of its class. **Duchess of Wellington*, silvery shade on a sulphury base, remarkably bright, very compact; size under medium, but a striking model for a front row. *Bessy*, a good yellow, its only fault an inclination to a high shoulder; a very bright and useful variety, petal slightly indented, but makes up well, and the centre well up to a flattish face. *Yellow Beauty*, not quite so good, the centre not so full up; in other respects a good sound flower. *Cameleon*, another yellow, very full and compact, petal very slightly indented, and appears to lose it as it ages; centre rather depressed, but a useful flower, symmetrical, double, and of a good size. *Corsair*, rather rough outline, petal a little indented, centre not quite up, but very sound; colour deep maroon red; may be useful. *Grand Sultan*, an acquisition to the dark class; petal papery, not velvety, rather rough in the outline, but well up, and symmetrical. *Sebastopol*, blood red, rather coarse, good centre and symmetrical build, but inclined to flatness on the face. *Captain Ingram*, purple crimson, papery petal, and under part shows a little; outline rather rough, but may be useful. *Enchantress*, a very beautiful, if a striped flower can be beautiful; variety after the way of *Gloire de Kain*, which it beats in size and brilliance; it is rather flat, but the best in its class. *York*, a rich lilac, badly grown, but not an unlikely flower in good hands. *Miss Burdett Coutts*, a sort of fawn colour, with darker under surface that shows a little; far too open a flower for the present day, otherwise very symmetrical, and a good centre. *Mr. Eyres*, a perfect little model of a purple flower; certainly under size, but very pretty.

All those marked with asterisks we should have if we could, whether we had others or not, for they are novel and good; the others, however, are faithfully described.

Of last year's Dahlias, Ablet's *Incomparable* and *Port Wine*, which came out at five shillings each, are in the first rank of last year's flowers.—G. GLENNY, *Lloyd's Newspaper*.

REMARKS ON THE BLUE-FLOWERED HYDRANGEA.—Noticing the different matters mentioned in the *Cabinet* that have been employed—some with varying success and others failing entirely—to cause the Hydrangea to have blue flowers, I forward the method I adopted most successfully. My compost consists of one-half chopped *turfy loam*, and the other equal portions of fibrous peat-soil, and small bits of charcoal. In potting, I give a free drainage made of the roughest pieces of turfy peat and charcoal about four inches deep; having shook off nearly all the old soil, I repot, in a careful manner, with the above compost. The plants grow very vigorous, producing very superior heads of bloom; but what proves the most gratifying is, the blossoms become of a beautiful vivid blue.

CROCUSES IN POTTERY.—(An Amateur Lady Gardener). The pots you allude to are of various forms, as hedgehog, bell, pyramidal, etc., each of which has a saucer of proper form. The surface of the pot (say one in the form of a bell-glass, such as is used to placed over cuttings, or the old-fashioned bee-hive) has several rows of round holes, each hole about three parts of an inch across. A light soil is used, as rotten leaf-mould with a portion of loam, and a sprinkling of moss in it, to bind the entire together. The pot being placed with its mouth upwards, a bulb is placed in each of the *then*

lowest tier of holes, and a small portion of moss is placed to prevent soil being seen at the outside; then soil is filled in, somewhat firm, as high as the second row of holes; they are properly filled with other bulbs, and moss and additional soil given. This course is pursued till the whole is done, then the bell-shaped pot is turned over, with its mouth downwards, into the saucer. Water can be poured over the surface of the pot, which will enter the holes; or if desirable, the pot can be turned up, and water be given at the mouth of the pot. After being planted, place them in a cold pit or frame, and if required to bloom early keep the lights closed, or place them where there is a little more warmth. A succession may be had by placing some in a cool situation, and introducing them in due course. Crocuses do not like extra warmth, and the soil must be kept moist.

FORESTS OF JAVA.—In Junghuhn's "Travels in Java" we find an account of the remarkable forests completely covering an ancient volcanic mountain (Manella-wanzie), over 9000 feet high. The woods near the summit have a very peculiar character. One of the most frequent and conspicuous trees is *Thibaudia vulgaris*, the trunks of which here attain enormous thickness, some as much as ten, others eight, most above six feet in circumference. Affected by the exposure of the elevation, they are gnarled, curved, and abundantly branched at a height of three to six feet from the ground, their branches being very much contorted, and spreading widely. *Thibaudia rosea* and *Gaultheria leucocarpa* (fifteen feet high), *Photinia integrifolia* (twenty-five to thirty feet high), *Gnaphalium javanicum*, and *Vireya retusa*, are other characteristic plants; but *Leptospermum javanicum*, with its white-spotted dome of leaves spreading over the *Vireya*, or a *Gnaphalium* and *Iledea squarrosa*, creeping far and wide among the trunks and branches of the other trees, are particularly striking. Scarcely a tree is found of which the trunk is not short and divided low down into numerous gnarled, curling, and most irregular branches. The Tree-fern *Cyathea oligocarpa*, which rises fifteen or twenty feet high, straight as a dart, and bearing its radiating crown of fronds at the summit, becomes thereby the more conspicuous. Herbaceous Ferns are abundant, as also other Cryptogams, such as Fungi. But the most curious of this tribe are the Mosses (*Hypna*, *Leskeæ*, etc.), which clothe the trunks and main branches of the trees with cushions a foot and more in thickness, exaggerating the monstrous appearance already given by the irregular, twisted mode of growth. They also cover the damp ground to such an extent, that the flowers of the Rhizanth, *Balanopora elongata*, parasitical in the roots here, can scarcely cut their way through. While the Mosses clothe the trunks and main branches with their deep green cushions, heightening the gloom of the forest, the smaller branches and twigs are overgrown with whitish-grey Lichens (*Usnea*), fluttering in the wind, and completing the character of such an ancient forest, hoary with time.—*The Garden Companion*.

DIOSCOREA BATATAS.—After what I formerly stated concerning this Yam, I think it no more than right to send you the result. It may be remembered that I had but one plant, a tuber about the size of a finger, or nearly so. It was started in the spring, in a very moderate heat, and when pushed a considerable length it was turned out (I have forgot the date, but not early). To give it depth of soil, which I understood to be a requisite, I raised a sort of flattish hillock on a garden border, and turned the plant out on the top of it. The stems were tied to a 3½ feet stick, but had no other care except on two occasions, when a soaking of water was given, to moisten the ground about it. About a week ago I dug up the plant, which had made two long tubers—about the size of two moderate carrots, only growing inverted, viz., the thick end downwards. I have weighed them, and I find their joint weight is 1 lb. 12 ounces; circumference round, where thickest, 6½ inches. So much for facts—now for opinions; mine is, that although it will neither rival nor supersede the potato, which no one can desire, yet, if grown to some considerable extent, it would be a very good auxiliary to that useful root. I am further of opinion that it is not nice about quality of soil, but it seems essential that it should be deep. On digging mine, I found these lower extremities from eighteen to twenty inches below, the upper end forming a longish slender neck. Next spring I mean to plant a row of it.—*Quercus*.

BRUGMANIA KNIGHTII.—In the notices of new and select plants at Kew, the *B. Knightii* is particularly recommended. Its dwarfish habit, free blooming, large, pure

white, double pendulous flowers alike rendering it an admirable plant for a conservatory or greenhouse. I procured one, but it does not succeed well in my greenhouse. What treatment does the plant require? [Let the plant rest after the blooming is over, by only giving it water to keep the soil from being dust, and let it be in a dry situation, in a cool part of the greenhouse, or pit-frame—and only just preserve it from frost. At the latter part of February, prune back the last year's shoots so as to leave two buds on each, and place the plant where it will have an increase of warmth, and gradually increase watering. When the buds have pushed and shoots are an inch long, repot the plant; take away a good portion of the old soil, and replace with well enriched compost. When the new shoots have become strong, then place the plant where it will have more air. Early in June plunge the plant (in the pot) up to the rim, in the open ground in a sheltered sunny situation; attend to it with water, etc. About the last week in August, raise the plant up and place it in a warm situation in the stove or greenhouse, give it manure, water, etc., and it will soon come into bloom. The flowers are produced on the same season's young shoots. The same plant can be made to bloom twice in the year, by giving it an early but short rest after blooming, and then placing it in higher temperature. It is an elegant flowering plant deserving every attention; the blossoms are fragrant.]

ON DISSECTING LEAVES.—In compliance with the wishes of A Subscriber and Admirer of Floricultural Botany I observe, that I have dissected leaves, calyxes, and capsules of flowers, by the following method:—"Cherries, Pear, Poplar, Ivy, Holly, or Maple leaves to be gathered in June or July, when the young leaves are at their full growth; put them in an earthen pan, full of rain-water, as it wastes fill it up, but do not empty out any of the water. Some of the leaves will be ready to dissect in a month, and some not in less than two. When the external membranes begin to separate, then is the time to begin the operation. The leaf must be put in a flat, white plate, with clean water: squeeze the leaf gently with the finger and it will open on one side, the green juice will press out; then the two outward skins must be stripped off, first in the middle and along the sides, where they closely adhere, and if an opening is made, they will easily come off: then wash the skeleton in clean water, and put it between the leaves of a book to dry. Pear and Holly have a double set of fibres, that must be separated with circumspection; one set of fibres is more perfect than the other." I must observe that I was not able to procure rain-water for the greater part of the leaves I have dissected, and that I succeeded without. Box leaves I found to require to remain several months in the water. Some leaves of the Spanish Chestnut I once had for more than a year in water, and then was obliged to throw them away unchanged: I have not since been able to try them again.—I have now a query to propose. I have succeeded perfectly in dissecting the leaves and the floral leaves of the Lime tree, but the skeleton of the Lime tree leaves remains green, and no washing will bleach it. Perhaps some reader of the *Cabinet* will have the kindness to inform me how to bleach them, without injuring the fibre of the skeleton. The above is a dirty and not a very sweet job, but the admirable beauty of the skeletons, in my opinion, fully compensates for the trouble.—*A Practical Lady Gardener.*

MILTON'S MULBERRY TREE.—The mulberry tree planted by Milton, in Christ Church garden, Cambridge, when he was a student there, still flourishes. About six years ago the trunk, reduced by decay to a mere shell, was completely covered by a mound of earth, with the best effect. The old tree is now in luxuriant foliage, with abundant promise of fruit.—*Cottage Gardener.*

ON AMERICAN OR MEALY BUG.—Having a Chinese apple tree in my shrubbery, it had for two years become infested with the Mealy or American Bug. In order to destroy it, in February, 1842, I took a quantity of the finest brickmakers' clay from a brickyard, and carefully coated the tree over with it, as far as the insect infested it. This, by excluding the air from the insects, soon destroyed them. The coating came off by natural causes. I kept the diseased portions plastered over the entire year, and it so answered the purpose, that not a vestige of the insect has been seen since February, 1845.—*A. B., Andover.*

PROPAGATING ROSES BY GRAFTING ON THE ROOTS.—Mr. Mackenzie foreman in the gardens at Luton Hoo, in Bedfordshire (formerly the magnificent family seat of the Earls and Marquis of Bute), has succeeded admirably in propagating roses by grafting on the roots. The mode of procedure was as follows. Just as the buds were swelling,

he pulled up an old rose bush, cut off some of the strongest roots, and grafted them with grafts of the *La Reine* rose and some other similar good sorts; he then potted the grafted roots into small pots, leaving only two buds above the soil, and placed the pots in a *close*, cool pit-frame. Now (August) nearly all are nice flowering plants and the pots well filled with roots.

FLORAL OPERATIONS FOR DECEMBER.

FLOWER GARDEN.—The fine open weather has been favourable to the blooming of the *Chrysanthemums* in the open air. Where the *flower beds* require to be ornamented after these flowers are cut off, provision must be made by dwarf kinds of *evergreen shrubs* in pots, such as *Laurustinus*, *Mahonias*, *Box*, *Rhododendron*, etc. *Tulips*, *Anemones*, etc., not yet planted should be done immediately. The single varieties are highly ornamental as early spring flowers. Any spring-flowering plants should now be planted, such as *Gentianella*, *Hepatica*, *Draba*, *Aconites*, *Crocus*, etc.

FLORISTS' FLOWERS.—*Auriculas*, *Polyanthuses*, etc., must be protected from overhead wet, and have all air possible in dry weather. In severe dry frosty winds, protect from such. Keep the soil just moist. *Carnations*, *Picotees*, etc., require similar attention. *Pinks*, in beds, keep soil pressed properly around the stems. A few sticks pricked among the shoots prevent the plants being twisted off. So in reference to *Pansies*. Beds of *Hyacinths*, *Tulips*, etc., require attention in protection, should weather be severe; the surface, too, carefully stirred. *Ten-week Stocks*, *Mignonette*, etc., in pots for spring flowering, should be kept free from frost, and not be overwatered. *Fuchsias*, and tender *Roses*, etc., in open beds should have mulch over the roots. Protect the stems, etc., of any tender tall-growing *Roses* or other plants, with branches of evergreen firs, yew, furze, etc. Protect newly planted tender shrubs over the roots, and from being twisted by wind. Sweet *Violets* plant in every direction near walks, rooms, etc.; especially have plenty of the lovely varieties of *Crocus*, *Snowdrop*, etc., near the house. Protect *Chrysanthemums* from frost, or the suckers will be injured by frost. *Hollyhocks* now planted bloom much more vigorous than if delayed till spring. *Hotbeds*, etc., for forcing flowers should be prepared. Suckers of *Roses* should be taken off, and *Roses* should be planted, if they are to bloom well next season. *Dahlia*-seed must be kept secure from wet, the roots too from being injured by frost or damp, so as to be mouldy.

FORCING STOVE.—The ornamental and fragrant flowers for winter decoration, should regularly be introduced, such as *Roses*, *Gesnerias*, *Heliotropes*, *Correas*, *Cinerarias*, *Cactus*, *Eranthemums*, *Scarlet Geraniums*, *Gardenias*, *Hyacinths*, *Crocuses*, etc. (See lists in calendars of former volumes.)

GREENHOUSE.—Only give as much water to this class of plants as will just keep the soil moist (not wet), and let it be given in the morning. Admit air freely, so as only to keep frost out. Do not allow *Chrysanthemums* done blooming to remain longer, or suckers will spindle up. *Camellias* must not be allowed to become dry, or the flower-buds will drop, let them be kept moist. Where there are clusters of flower-buds, thin them, so as to leave only one at a place. *Cinerarias* are liable to be attacked by green-fly; if they become so place them in a frame closed, and fumigate with tobacco. *Pelargoniums* for exhibitions next season must not be forced forward, but kept stiff. Such as fill the pots with roots should be put into a size larger. About the end of the month, stop the leads of longest shoots, to make them throw out laterals. Do not crowd the plants. (See articles on culture of in previous numbers.) *Calceolarias* must not have much water; shoots will often have roots protruding underneath, such should be potted off. *Verbenas* in frames must be kept near the glass, have plenty of air, and be careful not to over-water them. *Ericas*, *Epacris*, *Azaleas*, etc., require an airy situation, only protect from cold east or north winds. Plants that have extended as far as desirable should have the leading shoots stopped. The greenhouse should be ornamented with *Chinese Primroses*, *Cinerarias*, etc. Do not allow the surface of the soil to be crusted, or covered with moss, but let it occasionally be stirred; this very much promotes the health of the plants. Pots that become *green* are injurious, excluding air from the roots, clean them. Only have just as much fire as will keep out frost, and dry up damp.

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AND

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P R E F A C E.

IN presenting the present volume of the FLORICULTURAL CABINET to the Public, the Editor does it with a strong feeling of confidence, which is inspired by its increasing circulation. To this unequivocal testimony in its favour he refers with a sense of grateful pride, as well as perfect consciousness that for success he is chiefly indebted to the number, variety, and practical usefulness of those communications with which he has been enabled to enrich its pages.

It is this, the Editor feels, that constitutes his stronghold upon public patronage, and upon which he rests with unabated confidence; he also feels assured that his own anxious endeavours to diffuse Floricultural knowledge will be zealously seconded by those who can so materially aid him by contributing the results of their experience, and offering farther suggestions for the improvement of the work, an object which has at all times been acted upon, by adopting such suggestions as are compatible with the low price of the work.

In the twenty-four volumes of the work which have been already issued from the press, the Editor does not hesitate to affirm (backed by the opinion of great numbers of the floral

public) that they contain more useful information on the department of which they treat than any other work extant which is farther illustrated by the fact that, although since the establishment of the FLORICULTURAL CABINET many works of a similar nature have been put forth and have successively passed away, the present continues to receive the largest share of public patronage.

With renewed pledges for the future, the Editor begs to return his sincere thanks to his numerous readers and correspondents, trusting to a continuance of their support, which it is his anxious desire to merit.

LONDON, *December*, 1856.

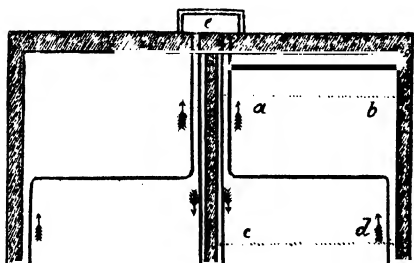
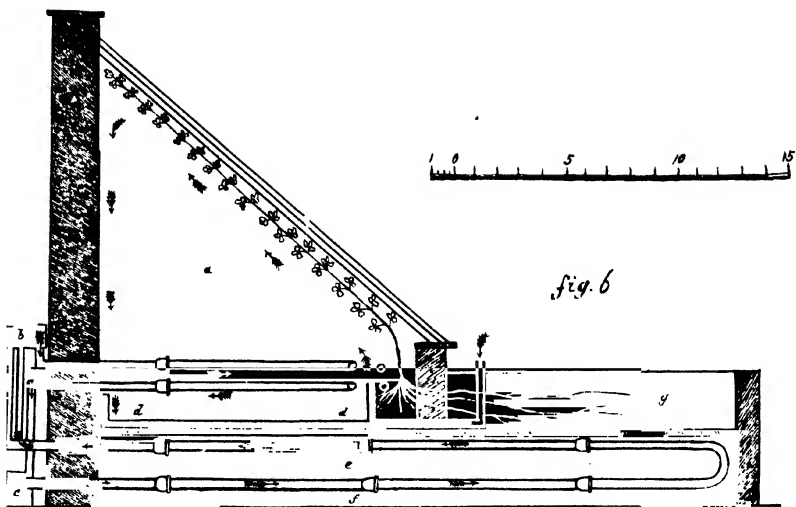
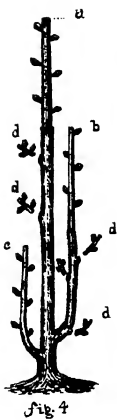
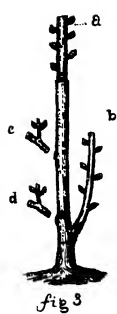
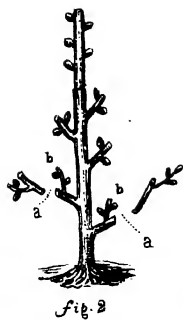


fig. 8



SMILAX MAURITANICA.

The Floricultural Cabinet.

JANUARY, 1856,

ILLUSTRATION.

SMILAX MAURITANICA.

THE name of this genus is derived from *smile*, a scraper—the stems of the earlier discovered species being rough with numerous short prickles. It is affirmed that the genus comprises one hundred and fifty kinds, some of which have been discovered in almost every temperate climate of the globe. They are climbing plants, of a similar habit to the Ivy; whilst some of the stems climb, others creep along the ground; in their *native localities* they climb up the trunks of trees, in *shady woods*, to a considerable height. Of those introduced into our own country and proved hardy, they are admirably adapted to cover the naked trunks of trees that are contiguous to the dwelling-house, or other much-frequented structure, walls, etc. The *greenhouse kinds* are well adapted for covering the inside of the back, or end walls, even if shaded by other plants or stage, training up pillars or over trellis-work.

The *Smilax* belongs to the twenty-second class of the Linnæan system of botany, viz. *Diœcia*, which comprises plants that bear female flowers on one individual, and males on another. The flowers are small, uninteresting, of a greenish-white tinged with yellow. It is evident that the plant from which our figure was taken is a female, of great beauty, bearing a profusion of its richly coloured bunches of berries. It is very interesting and ornamental, deserving a place in every greenhouse. It grows freely in equal portions of loam, peat, and leaf-mould, freely drained. Plants may be procured at a low price. M. Van Houtte possesses some of them. The roots of the *Smilax Sarsaparilla* being cut into thin pieces is the far-famed medicinal *Sarsaparilla*, so well known as a restorative of health.

REMARKS ON TREE CARNATIONS.

BY MR. WILLIAM SMITH, ST. JOHN'S WOOD, LONDON.

IN the establishment with which I am connected there is a most

admirable collection of all the best, numbering one hundred and twenty-four varieties. Many of them have been in bloom all the past summer, and the same plants are likely to do so freely through the coming winter; in fact, as their title imports, they are *perpetual blooming*. They are comparatively of recent introduction; but scarcely any other plants have proved so really useful, especially during winter, as these beautiful flowers, whether for cut flowers, or displaying their beauties on the plants. They flourish, too, at that season, either in the dwelling-room, pit-frame, greenhouse, or stove.

Their cultivation, too, is of the easiest character. They are readily increased by cuttings, taking those shoots which are about *half ripened*, cutting them *close under* a joint, and dressing off a few of the lowest leaves. The best time to do it for a *winter stock* of blooming plants is in *spring*, from the middle of March to the middle of May; they then have a summer's growth and become strong.

The cutting pots should be well drained with crocks, next a portion of moss upon them, then some rough shiftings, and be filled up with a mixture of equal parts of fresh loam, leaf-mould, and silver sand; and after watering this compost, the cuttings may be inserted, being careful that it is *closely pressed* around each cutting; but in doing this, do not *bruise* the part which is in the soil. If the pots be placed in a *gentle* hotbed frame, or other close structure, where there is a little bottom heat, they will soon strike root; shading from the sun is necessary. It sometimes occurs that a few of the leaves decay, if so, take them off immediately, or they will create damp.

When the cuttings are rooted, pot them into four-inch pots, in a compost of equal parts of loam, peat, old dried cow-dung, and silver sand, with a sprinkling of bits of charcoal, brick, or porous stones, and still have them where there is a gentle, warm, *moist* atmosphere. As soon as they begin to grow, give an increase of air, to prevent them *drawing* up weakly; after pushing a few inches, stop the leads, to cause the production of *side shoots*, so that the plants may be *bushy*. Gradually harden them off, and when well established, place them in a shallow cold pit or frame. The plants delight in frequent syringing, *under* and *over* the foliage. If attacked with green fly, dip the plant in strong tobacco-water. As soon as the pots are well filled with roots, repot into seven-inch pots, and again into larger, as required. If the foliage be attacked by *mildew* (seen by black spots appearing), sprinkle over and under with dry sulphur. Just before the cold damp weather of autumn occurs, let the plants be removed to the greenhouse, conservatory, dry pit, or other frame, where they will soon begin to bloom, and a succession be furnished through winter and spring. When they have done blooming, take off any suitable cuttings, and cut the plants back, quite low indeed, to cause a fresh supply of shoots, either for cuttings only or, if desirable, to form a larger bush, to bloom the following season. An application of *manure-water*, with a sprinkling of *soot* in it, should be given to the roots once a week, during the period from the buds first

appearing to the time the bloom is in perfection. This liquid enriches the soil, and the plants become more vigorous, the foliage of a deeper green, and in proportion is the quantity and size of flowers, and the richness of their colours. The stopping of shoots on established plants must be regulated by the period it is desirable they are required to bloom: as, for instance, to bloom in winter, do not stop later than the middle of July; but to come into bloom early in spring, stop them about the first week in September. By introducing plants in succession through winter, placing them in a gentle warmth, they may be had in bloom at any desired time.

Any surplus stock plants may be planted out-doors, trained to a good-aspected sheltered wall, and grown in a *well-drained* border of rich strongish soil, and they will, if put out early in May, bloom from the beginning of June to the end of summer. I have usually thus put out the previous year's plants that had been cut down after blooming.

The following eighteen varieties are very excellent. *Adonis*, bright scarlet, with white stripes, dwarf habit; *Ariosta*, rich crimson, self, superb variety; *Don Pedro*, purple, mottled with white, free bloomer, dwarf, showy; *Duchesse de Berri*, yellow edged with rose, very superb; *Emilia Campioni*, yellow, edged with scarlet, superb; *Le Grenadier*, very brilliant scarlet, of great beauty; *Isabella*, purple spotted, and mottled with white, free blooming; *Cornelia*, fine violet purple, rich clove-scented; *La Concorde*, salmon and scarlet, fine form, and very sweet; *Madonna*, blush, striped and spotted with crimson; *Victorine*, orange-yellow Picotee, with scarlet edging, very handsome; *Picturata*, very large, in flakes of scarlet, white and crimson; *Princesse Hortense*, rich crimson, clove-scented, superb; *Turgionia*, rich deep violet and purple, very sweet; *Temple of Apollo*, scarlet and crimson flake, clove-scented, superb; *Reine des Blanches*, very large, handsome white flower; *Henrietta Chauviere*, white Picotee, edged with purple; *Flora Mc Ivor*, white Picotee, edged with rose, beautiful.

A SUCCESSFUL METHOD OF CULTIVATING THE INDIAN AZALEA.

BY MR. JOHN WRIGHT, OF TABLETON GARDENS, SALOP.

By the following mode of treatment I have grown and bloomed this beautiful family of plants far superior to any I have seen elsewhere, not excluding even those shown at the London exhibitions. Turfy-sandy peat soil, not sifted but chopped, which has been laid in a ridge for six months, and about a quarter of rich loam, also kept rough, is a compost they delight in, using a free drainage. Care must be taken not to over-pot them, and to let the ball be highest at the centre, and be raised so that the water does not lodge about the

collar of the plant, or the plant will be very liable to canker off. They should be repotted *just before they begin to push* in spring; when growing, be frequently syringed over head, and kept in a temperature from 50 to 60 degrees. Have a liberal allowance of air and light, taking care they are not placed in a *cold current*, as it often destroys plants so situated, especially in the early spring months. When done blooming, about the end of July, place them in the open air, where they will be sheltered, not under the drip of trees, but where they will have the full afternoon sun. Here they will require to be frequently syringed. At the end of September, having formed their blooming buds, they should be taken into the greenhouse, and be placed at the back part, near to the glass. Some attention is required in forming a plant so as to have a nice leading stem, and to be clothed from the edge of the pot to the summit with a regular arrangement of blooming shoots. Occasional pinching off the points of the leaders or laterals will be necessary to effect the purpose, but with such attention any desired form is readily obtained. When required to bloom in winter or early in spring, it takes about five or six weeks from beginning to push till they are in bloom, and by regular introduction a constant succession from Christmas to July may be had.

VALUE OF THE LILAC.

BY AN OLD AND ARDENT ADMIRER.

THIS old and favourite ornamental deciduous shrub, like the Rose, obtains a place wherever trees and flowers will grow. It is especially popular with the poor, who have only a small patch of ground, and cannot afford time to give much attention to what they grow for their pleasure. Like the name of a great man, it finds its way into every nook and corner, and is certainly the first to be selected by every humble cottager who has taste enough and time enough to cultivate a few flowers. The Lilac is one of the hardiest plants grown in England. It will withstand our severest winters; and nothing but a continuous cold north or east wind has the least effect upon it. But even in such a wind, and during a severe frost, it is but little injured, save when exposed to an incessant current; then, of course, like everything else, the Lilac will give way. You may cut it down, but it won't be cut up. The branches may be killed to the ground, but others will rise on the return of fine weather. Then, again, the Lilac is one of the very first to bud and blossom in the spring; and it is green long before others of its compeers are well out of their winter's sleep. Like the Buttercups in the meadow, its very appearance speaks of summer; and associated with the bright yellow Laburnum, its flowers produce a charming effect by the waysides; whether they are the *true lilac* colour, rose-white, or what is termed

the *new-red* flowered, and borne in such profusion as to bow down their graceful plumes in order that the admirer may inhale more easily the richly perfumed fragrance of their beautiful flowers. With all its recommendations, however, its hardy constitution, its graceful habit, and its beautiful flowers, the Lilac, it must be confessed, has its faults, or rather fault, for it has but one—its tendency to push up shoots at the root, which, under certain circumstances, make it a mere net for all sorts of passing litter or rubbish. At the fall of the leaf, all the other trees and bushes seem as if they would make quite a “butt” of our good-natured acquaintance, and keep on “shying” their cast-off clothes into its lap—at least so long as the game lasts. Indeed, I have sometimes fancied that its name must have some connection with the idea of a “save-all,” a net or trap; for it would take me some time to describe all the miscellaneous and heterogeneous articles of which it is often made the depository during winter. But I do not think such an account would be interesting enough, especially as many of the items which I find now and then have no possible resemblance to the foundlings of the Excise-office. I must protest, however, against planting my old favourite beside the railing of squares and other enclosures, where it is so likely to be made the receptacle of old shoes, broken bottles, and the lighter articles which are “wafted by the early breeze,” in the form of tailors’ refuse, straw, and leaves. Why should the Lilac be selected to form the laughing-stock of every passer-by? In order that I may have the *Lilac bushes* ornamented with flowers, when their own blooming is over, I have planted the *Evergreen Honeysuckles* near to them, and have the branches entwined amongst those of the Lilac, and they bloom over the surface till November. I have also had them adorned with *Convolvulus major*, which succeeds well.

OBSERVATIONS ON CORRÆAS AS WINTER AND EARLY SPRING ORNAMENTS.

BY MR. FREDERICK WELLS, ASHRIDGE HOUSE, MIDDLESEX.

THE beautiful *Corræa speciosa* I first saw in the fine collection of plants in the garden of Count de Vandes, at Bayswater, thirty years ago. I soon obtained one and have grown it ever since, considering it one of the most neat and beautiful *winter and early spring* flowering plants we possess. The species subsequently introduced, and all the hybrid varieties that have been raised, and offered for sale at the nurseries since that period, I have obtained as soon as I could. I now possess thirty-five different kinds, and have had them for some years in fine bloom in my greenhouse or sitting-room window, from the beginning of November till May. Their beautiful tubular-formed flowers of varied colours producing a pleasing contrast, render the entire family one of much interest. Several years back I commenced

hybridizing, with a view to obtain other distinctive varieties between the best species I had, as *C. speciosa pulchella*, and others, and have raised a considerable number of varieties, not two of them alike, varying either in colour, form, habit, or size. I was much astonished with the result, that from the same parent there was such a dissimilarity after the process of an artificial impregnation. It is, however, well known that artificial or natural peculiarities can be and are transmitted from parent to offspring, in the vegetable as well as in the animal kingdom, although we cannot yet and perhaps may never be able to account why such constitutional peculiarities are so transferred. Let us, then, be content with knowing that these peculiarities do exist; let us, likewise, multiply and register as many facts as bear directly or indirectly on the subject; and from an accumulated store of this nature something tangible may yet be deduced for future guidance. To know when the stigma is ready for dusting with pollen, to extract unripe anthers from an intended female parent, is so simple that it might be taught to a child in a few minutes; not so the means by which certain properties may be produced, and ultimately will probably be produced at pleasure, by cross fertilization; say, cross offspring with very dwarf and fruitful habits, or the reverse; very luxuriant habit with double flowers, or the contrary; and many other peculiarities, needless to mention here. Yet we have presumptive evidence already that all these states of existence are guided by certain fixed laws, and perhaps depend on the different states of development of the vital principle in the parents. Any facts therefore tending to elucidate such laws or states of development cannot but be interesting to the physiologist, and of the greatest use to the hybridist. In the attention I have paid to this interesting pursuit, I have found that *C. speciosa* or *C. pulchella* may be both used for female parents; either of them may be tried with *virens*; but clear clean colours in the flowers of this cross cannot be expected, the thing being as much a matter of curiosity to ascertain the powers of crossing in this very interesting genus, which, like the Fuchsia, is a favourite with every one. *Virens* and *rufa* will cross; but, in this case, *virens* alone has been used as the female parent, *rufa* being so insignificant a flower that it would be likely soon to reduce the flowers of *virens* in the offspring. From this cross, by breeding in and in, as the farmers say, a clear white flowering offspring may reasonably be expected in the third generation; while, by crossing in and in the highest-coloured varieties from *speciosa* and *pulchella*, I have obtained some deep crimson flowers. I have crossed a pure white seedling from *virens* and *rufa* with a deep crimson variety, and procured clear intermediate colours. All the species and varieties I have tried with *alba*, and have raised some, but they have not yet bloomed.

The manner of conducting these experiments may be useful to amateurs and young beginners. Take the healthiest plants you can procure; and unless you have very healthy vigorous plants, go directly to the nursery and procure a few of each sort, with plenty

of blossom buds on the strongest leading shoots; this is the grand secret of the whole business. A practical gardener may take these from the greenhouse, or even cold frame, into 75 degrees of heat at once; but those not conversant with the treatment of plants would soon kill any plant by such a sudden transition. From the middle of February to the end of March is the best time to take the plants into the stove. Pinch off all the leading buds on the lateral shoots, but not on the leading shoots. As soon as the flower expands, extract the anthers from the intended female parent; and next day, or as soon as you perceive the pistils getting moist, apply the pollen, at the same time making two or three slits in the whole length of the corolla, to let out the sweet secretion often lodging on the germen. See that the decaying corolla does not damp off the style, which ought to be preserved till it dries off itself. As soon as you perceive the germen swelling, stop the leading shoots. Apply all safe stimulants till the seeds are ripe, but do not let the plant expend its energies in the production of young wood. Pinch off every bud as it offers to expand. Keep the plant or plants as near the glass as possible all the time, and sow the seeds as soon as ripe. Seedlings produced in the greenhouse will not be near so vigorous as those in the stove, and their being originated in heat does not alter their hardiness in the least.

CULTIVATION OF THE RANUNCULUS.

BY AN AMATEUR.

FINDING that the *Ranunculus*, comparatively speaking, has little or nothing said or written to encourage its growth, or sing its justly deserved praise, I trust that a few lines in your Magazine will prove useful to somebody.

Which of all *Flora's* gems can compare with it? True, some prefer the *flour* of oats, and some of barley, but most of finest wheat, to all creation's *flowers*; whilst others quite as lustily cry with Dr. Johnson, of all the *garden flowers*, the *cauliflower* for me. Now, if I might choose in wide creation's round, with leave to take but one, the flower that gives a smile to the cotter's fireside, when the cares and toils of day are over, would be mine.

But to return again to *Flora's* garland. How just the remark, what so graceful as the *Fuchsia*, or so gay as the *Geranium*? nay, what so chaste as the *Auricula*, or what so lovely as the *Rose*? and most of all magnificent, the *Dahlia*? Qualities and names have been assigned to others, as sweetness and humility to the *Violet*; whilst the title of Queen of the Garden has been justly given to the *Tulip*. But what, shall we ask, has been reserved for the subject of this paper, that cannot with equal propriety be assigned to any other?—most certainly symmetry. The *Ranunculus*, for symmetry, truly

every other flower, and, doubtless, gives us the true idea of form in every double flower.

Now if, after I and many of my neighbours had given up growing the *Ranunculus* for some years, in consequence of repeated failures, I give a description of a small plot and the treatment of them, and some of your readers should be induced to give them a second trial, and succeed, as I have done, I am sure they will be highly gratified.

Before doing this, I may here say that the *Ranunculus*, *Anemone*, and *Iris* were grown by me, with considerable success, more than thirty years ago. Those being the favourites of my youth, great care I took of them, and often were they admired, and I dare say justly so, but never had I anything like, nor ever have I seen anything like the batch I wish to describe to you, giving you the treatment, which I consider the entire cause of their uncommon vigour and beauty.

Last autumn, writing to my friend Mr. Lightbody on business matters, he offered me some of his fine *Ranunculuses*. I said to him that myself, with many other persons, had given them up entirely, it being so difficult to get a fine bloom. In his reply, he said that he would make it a very easy thing, if I would attend to the following directions, which were very simple and very kindly given. Those directions being quite free from any perplexing nostrums, I at once agreed that he should send me a few of the very best he had. Those I soon received, forty in number, according to his catalogue price, amounted to nearly eight pounds.

But what were the accompanying directions? As near as I can recollect, they were these:—"The *Ranunculus* must have something to live upon. In the autumn, I throw out a trench, from one foot to eighteen inches, according to the depth of the soil, putting at the bottom some well-rotted cow-dung or old hotbed manure, filling it up again with the same soil. In the month of February, rake it very fine, plant exactly an inch and a half deep, destroy all weeds and vermin, press the soil firmly about the necks of the plants, and I have no doubt you will have what will gratify you. One of the most important things to be attended to is not to let the roots remain in the ground after the foliage has changed colour. If you want any other information, I shall be most happy to give it you." Being then in possession of those valuables, I thought I must once more try my skill: I therefore made choice of a bed two yards from a south wall, throwing out the soil as directed, and collecting a few baskets of well-seasoned dung from a cow pasture, I put it at the bottom, sixteen or eighteen inches below the surface, covering it up with the soil thrown out. In the month of February I made the surface fine and even, by raking the soil; I then drew off the soil to the depth of an inch and a half or two inches, marking the place where each root should be planted by putting down a small pinch of silver sand, in which I inserted each root; and now, in order to carry

out the directions given me, and that I might not cover them over much, or too little, I stuck in a few pegs, leaving just two inches out of the ground, so that I might cover them very exactly, and when the soil had settled they would be just an inch and a half deep.

Thinking that *Ranunculuses* often suffered from drouthy weather, I tried to obviate this by setting up a thin screen of branches, six or eight feet high, on the south side of the bed, partially to break the rays of the sun, but not altogether to exclude them. This done, they lay still for some weeks, when all came up, except No. 1, which, like the bubbles on the river after which it is named, had glided for ever out of being. The weather now being dry, I occasionally sprinkled them over with water; and being fairly up, in order to compress the soil around the necks of the plants, I carefully walked through and through. Under this treatment they grew most luxuriantly, raising my expectations every time I inspected them, especially as all who saw them declared they never beheld such plants. At length they nearly all came into bloom; but now comes my task of giving a correct description of their beauty and growth.

Mr. and Mrs. Archibald Johnson were amongst the giants of the bed, most beautifully formed and sweetly marked; *Archibald* looking over the head of his fair lady full four inches, she having raised her lovely face no less than seventeen inches high. Those are gems of the first water. Near by were the lovely *Jennie Deans* and *Nydia*, with delicate red edging, on pale yellow ground, rising to the height of seventeen or eighteen inches. *Roxalana*, quite as stately, very large and showy, but not quite so chaste as those above. *Petrel*, seventeen inches high—certainly more like an eagle, with gold-tipped wings, rising to meet the sun, than a bird of storm—was brilliant yellow, tipped with red, of the finest form. *Felican*, rising to the same height, exquisite in form, with a clear rose edge, on white ground. *Phroine*, *William Bradshaw*, *Aboukir*, *Zebina*, *Cyra*, *Prince of Wales*, and *Commodore Napier*, with *Thomas Hood* and *Little Nell*, all attained to fifteen inches, and formed an assemblage of beauty rarely equalled. *Liffey*, *Sultana*, *Delphos*, *Ashwelthorpe*, *Baritola*, and *Hon. Robert Wilson* fell an inch lower than the above group, still they were equally beautiful. *Philomel*, *Charybdis*, and *Claudiana*, beautiful, especially the last, were thirteen inches. *Emily*, *Dr. Horner*, and the lovely *Anne Hathaway* were one foot. And now, to end this long, and, I am afraid, tedious description, I shall just notice the lowest, rising only to eight inches here—*Mackenzie*, the author of “The Man of Feeling,” seeming to stoop to those chaste, lofty, and beautiful personages around him, to adore and admire. I may just add, that although the flowers were not very much larger than usual, there were those amongst them of the finest form and colour, from two to three inches over, while some had stems a quarter of an inch or more thick.

Now, if by this account of my little plot of *Ranunculuses*, and the simple directions here given, I induce some one to adopt the plan

and succeed as well as I have done, I shall consider my time not entirely lost. Here it may be well to state, for the convenience of those who may wish to obtain a collection of roots to begin with, that Mr. Carey Tyso, of Wallingford, and Mr. Lightbody, of Falkirk, from whom priced catalogues may be had, are amongst the *best growers* in the kingdom.

ON THE CULTURE OF ACHIMENES.

BY MR. CHARLES SHARPE, WESTOVER LODGE, HEREFORD.

Few plants are more beautiful than these, or will better repay careful attention and management. In order to obtain fine bushy specimens, the following treatment has been found useful. A box, or cutting-pan, is prepared, by filling three parts of it with a compost of equal parts of loam and leaf-mould, on which the roots are laid, and covered two inches in depth with the same compost. These startings are in January, for May and June blooming; in March, for July, August, and September blooming; and in the latter end of *May*, *A. coccinea*, *A. rosea*, *A. elegans*, and *A. pedunculata* for *December and January*. Until the shoots have appeared above the surface they must be kept moderately dry. When the plants are about two inches high, raise them from the box or pan in which they were started, and put them in their flowering pans, leaving a space of two inches between each plant, and using the same compost as recommended above, enriched by the addition of one-fourth part of old mushroom-bed dung, which will help to meet the great demand on the soil while the plants are in bloom, and by increasing the porosity of the soil, will prevent water from stagnating in the pans in the early stages of their growth. Too much care cannot be exercised in watering when the plants are in their infancy; if the morning's sunshine catch a leaf in a moist state, either from vapour or careless use of the watering-pot, in a few minutes it will become brown and crumple up, and be materially injured, if not destroyed. I have frequently had to carry the plants from the front to some shady place in the back of the pine-pits, when the atmosphere of the pit was loaded with moisture. Later in the season there is little danger of their suffering. A gentle syringing in the afternoon, with copious waterings of liquid manure at least twice a week, when they show bloom, will add to their vigour, enrich the colour of the blooms, and prolong the flowering season. When the plants have taken to their new quarters, pinch the centre out of each leader; they will then break out with a fine array of moderately strong laterals. One pinching I find sufficient for *A. coccinea* and species of a similar habit; twice for *A. grandiflora*, *longiflora*, and those of a like semi-bushy habit, whilst the straggling nature of *A. pedunculata* requires three or four pinchings to form a dwarf bushy plant. Let staking be proceeded with early; for if the

shoots once get out of order, half their number will be disjointed in raising them to their proper position. The stakes should be left at least nine inches above the plant, to tack the stems to, in their upward flowering progress.

ON THE CULTURE OF THE ANEMONE.

BY A COUNTRY FLORIST IN NORTHAMPTONSHIRE.

THE cultivation of this desirable flower approaches closely to that of the *Ranunculus*. If grown as an ordinary garden flower, seedlings will be found the most desirable, as they will ultimately prove the least troublesome, and most certain to produce an abundance of bloom—the only drawback being a deficiency of double flowers, which, in my opinion, is more than made up by the greater certainty, and immense supply of bloom. The *named double* varieties require more attention. The soil should be prepared with some degree of care, both as regards the quality and proper preparation before planting. A fresh, rich, loamy soil, inclined to a sandy quality, is the best suited for the purpose. The bed should be dug full eighteen inches deep, being frequently turned, that it may be thoroughly sweet and fit to receive the roots. This is a most important point, and should be particularly attended to; for if the soil is foul, a failure will surely be the consequence. It is far better to defer planting for a week, or even a fortnight, than risk planting in impure soil. When the latter is in proper condition for use, it should be levelled, and about five or six inches being thrown off the top, add a layer of decomposed cow-manure, of about four inches, and stir the latter in with the sweetened soil four or five inches in depth. This done, cover it with the soil thrown off, and leave it to settle for a day or two, when it may be raked. Draw off the large stones and coarser parts of the soil, and reduce the bed to an even surface ready for planting; first marking it out in rows, about five or six inches distance each way. Proceed by planting the roots two inches deep, taking care that the eyes are placed upwards, which, by a little careful examination, will easily be discovered, for there are generally a few of the small fibres left on the under side of the roots, which will prove a guide to the inexperienced. When the roots are all planted, carefully draw the earth over them with the back of a rake, and be sure they are all safely covered. The time of planting for an early bloom is about the middle of September. These will flower at the beginning of April, and will continue in flower for three weeks and upwards. If the season be favourable for a second course of bloom, a plantation should be made near the middle of October, or towards the latter end. These will succeed the former; and if some roots be kept in reserve, and be planted in January or February, taking the opportunity of fine weather in either month, as it may happen, they will

succeed the second plantation, and thus afford a continuance of flowers for nearly two months.

ON THE TERM "NATURAL," AS APPLIED TO IMPROVEMENTS IN LANDSCAPE.

BY A NORTH-COUNTRY LANDSCAPE GARDENER.

As one of the essential qualities of beauty in landscape, the *naturalness* of its appearance deserves particular attention. One is often questioned respecting the meaning of the word *natural* as applied to rural improvements, and I therefore attempt to give a satisfactory answer. Why, of two places, on which equal amounts of labour and art have been bestowed, one should have a natural and the other an artificial look, we cannot always readily explain. If one is stiff and formal, the other easy and graceful, and they differ in no other respects, we should say that it is the formality of the one and the gracefulness of the other that cause the difference in their expression. But there are scenes laid out without any stiffness or formality, which are far from having a natural look, making it manifest that if formality be one of the evidences of art, the opposite of this quality may not always conceal it.

We should say of the gravelled walks of a highly decorated parterre, how great soever the irregularity of their curvilinear directions, that they do not look natural; but we say the contrary of a field-path, that winds around the sides of hills, along the edges of ponds and meres, pursuing an irregular course through the vines and shrubbery of the pastures. They are both the work of art: but the one exhibits evidences of design, while the other is plainly the chance work of men and animals, who have trodden down the herbage while travelling the most convenient course to a certain point. It might be said that the irregularity, or graceful serpentine course of the field-path, and the geometrical configurations of the gravelled walks in the parterre, cause the difference in their expression. Yet a parterre may be laid out in the most irregular manner, and the field-path may be nearly straight, when passing over a level ground, still the case is not changed. The evidence of some special design would always be apparent in the gravelled walks of the flower garden and absent in the field-path.

A loose stone wall is as strictly an artificial object as a board fence. Nature, in both cases, provided the materials; and if the former has the appearance of being more natural than the latter, the explanation is that the materials of the stone wall are not of an artificial shape, but simply piled up into an artificial collection, while those of the board fence are entirely artificial in their shape. The board fence therefore exhibits to the sight more palpable evidences of art and

design than the stone wall. Hence the latter, compared with the former, is less calculated to mar the naturalness of the prospect. But if an object exhibit evidences of design, while it harmonizes with the general appearance of nature, it seems more natural than it would if it were wanting in such harmony. A naked board fence would, on this account, seem more natural than one that is painted, especially if the paint be white, or of any glowing colour. A coat of white paint carries it one remove further from nature, and presents to the eye an additional palpable evidence of design. On this principle we may account for the greater picturesque effect of rustic fences, or such as are made of the rude materials of the forest, which, though put together with neatness and skill, exhibit no evidence of complicated art or extravagant cost. Such a fence never can be made to harmonize with a costly villa, or with any buildings which are highly finished and ostentatious in their external appearance. As well might one of our fashionable ladies hope to pass for a shepherdess, by taking a crook in her hands and adding to her costly gear a few green oak leaves.

As the evidences of art and design are calculated to injure the natural appearance of a landscape, the same effects are produced by the evidences of cost. A landscape beautifully decorated, in harmony with the general aspect of nature, may have been laid out at a very great expense, yet if the taste and ingenuity of the artist have concealed the palpable evidences of cost, the whole scene appears to the beholder to be one of those lovely places on which Nature has lavished an extraordinary portion of her favours. This art I conceive to be the true secret of successful landscape gardening,—as the perfection of eloquence consists in the attainment of the highest graces of composition, combined with a charming simplicity, that makes the whole seem to be the extemporaneous outpouring of the mind. The designer of landscapes has attained the perfection of his science in proportion as he has learned to conceal the marks of cost and design, while adding to them all those charms which affect the visitor with the highest emotions of pleasure.

Hence it happens that landscape gardens so often fail in producing that agreeable effect on the mind of the beholder, which he derives from the sight of another similar place covered with a spontaneous growth of trees and shrubbery. The proofs of the lavishness of a great deal of money, in spite of the absence of straight lines and formal arrangements, are too apparent in the clean gravelled walks, in the clearance of wild shrubbery under the trees, and in the general symptoms of expensive labour, exhibited in a thousand different ways. One might say that everything about it is perfectly natural, because the trees and other vegetation are the indigenous growth of the place, and in the very spot where Nature herself had planted them. I admit that everything seen there is natural; but the absence of other things which have been cleared away for the sake of elegance, destroys this desirable effect. The very efforts which have been made

to give it a natural expression, if misdirected, may produce the opposite. A wealthy man cannot tolerate the growth of anything in his grounds that would seem to convey the impression of a want of neatness. Actuated by this spirit, he would root up, if requisite, thousands of native trees or shrubs, which, in their tangled confusion, are so pleasing to the sight about a rustic residence. By so doing, he exhibits in the aspect of his grounds the evidence of much expensive labour. The very neatness of their appearance mars their picturesque effects. No man who visits his place can fail to observe what is often termed an aristocratic expression, or the evidence, in one way or another, of a great deal of cost.

Let this landscape garden suddenly become the property of a less wealthy proprietor having but very limited means, and who will perhaps perform the labour part with little foreign assistance, and if there was no *geometrical precision* in laying out the walks and planting the trees, the place quickly recovers the naturalness of its appearance. The wild rose and the sweet fern reappear on the sides of the hills, and the rocky places are again overgrown with blackberry vines, or the low heaths. The sloe-bush springs up, and the thrush and the blackbird build their nest in the forks of the branches. Along the sides of the fences too the wild roses are seen again, with an undergrowth of other interesting low shrubs, and mixed with the green-sward, in their season, you behold a crowd of wild anemones, stitch-worts, buttercups, and wild geraniums.

The old gravelled walks have almost entirely disappeared, the grass has grown over them, and perhaps the ruts of the farmers' cartwheels, and the middle path made by the feet of men and horses, are all that remain of the ancient *aristocratic walk*. The grandeur of the old park is increased by the more ancient appearance of the trees, and the evidences of former expense and human labour are buried beneath an undergrowth of miscellaneous wild low trees and shrubs. The natural appearance of the grounds is at length fully restored; and their general aspect would, I believe, affect the minds of the majority of spectators more agreeably than when the small estate was in the most improved condition, in the hands of a wealthy owner.

It is not my aim to depreciate elegance, neatness, or grandeur; neither do I wish to recommend about a gentleman's estate the rusticity of a farm in the woods. A perfect naturalness is not attainable consistently with other indispensable designs. But were the wealthy owner of a place, like the one above described, guided by a desire to preserve in his grounds that simplicity which pervades all the works of Nature, he might easily have accomplished his purpose without any sacrifice of neatness or elegance. We should carefully distinguish between the *elegant* and the *finical*. But a man of ample wealth often allows his vanity to control his taste. If he resolves to make a landscape garden that shall harmonize with the beauty of nature, his ambition to advertise on the face of it the expense he has lavished upon it spoils the whole effect. If his pecuniary means

had been more limited he might have accomplished a better work. In his efforts to avoid the appearance of rusticity he has marred the face of Nature, either by decorating her with ornaments that do not *belong to her*, or by depriving her of some of those *natural ringlets* which always adorn her face when you see her in company with farmers and rustics.

An appearance of rusticity in any grounds, combined with neatness and beauty, is more pleasing than an equal degree of naturalness combined with the evidence of great cost. In these remarks I am not aiming to build up a theory. It is my object, by analysing the different emotions which are felt on beholding different scenes of combined nature and art, to ascertain their character and origin. If we can tell why men are pleased with one scene and displeased with another, we have, to a certain extent, acquired a knowledge of the principles of taste; and when employed in improving the face of Nature, we should not be guilty of those common errors, by which the beauty of a landscape is often destroyed. The exhibition of pride has been fatal, in hundreds of instances, to the picturesque effects of some magnificent grounds. Nothing is more difficult than to lay out a great expense on a tract of land, already moderately wooded, without injuring that beauty which originally belonged to it. There are more places ruined by *expense* than by *neglect*, on account of the scarcity, on the one hand, of that species of judgment which should belong to an improver of grounds, and the liberality of Nature, on the other hand, in raising up her bounties whenever she is left to act with perfect freedom.

(*To be continued.*)

INSTRUCTIONS FOR PRESERVING PLANTS.

BY LADY S. F—R.

It is unnecessary to enumerate all the advantages resulting from the possession of a collection of preserved plants, as they can be fully appreciated only by a person who has made considerable progress in the study of botany. But the beginner requires to be informed, that nothing can more materially aid him in his endeavours to become familiar with the objects which vegetation presents to his view than such a collection, to which he can at all times refer, either for refreshing his memory or for instituting a more minute examination than he had previously made. Plants are generally preserved by drying, and a collection of this kind is called a *Hortus siccus*, or *Herbarium*. Various methods are in use for drying plants, but the following being among the most simple and efficacious, and attended with little difficulty, is here preferred.

The articles necessary for the accomplishment of the object in view are—a quantity of smooth, soft paper, of large size (sixteen quires

perhaps); eight boards of the same size, about an inch thick, of hard wood; four iron weights, or pieces of lead, two of them about forty pounds weight, the others half that amount; or, in place of these weights, a number of clean bricks may be used, or, in short, any heavy bodies of convenient form. Along with these articles, a botanical box is necessary. This box is made of tin, and varies in size, from nine inches to two feet in length, according to the taste and avidity of the collector.

In gathering plants for this purpose, such as are smaller than the size of the paper are to be taken up roots and all. In many cases, portions only of plants can be preserved, on account of their size, and then the most essential parts are to be selected, including always the flowers. Plants to be preserved are to be gathered in dry weather, and immediately deposited in the tin box, which prevents their becoming shrivelled by evaporation. If gathered in wet weather, they must be laid out for some time on a table or elsewhere, to undergo a partial drying. When roots have been taken up along with the stems, they ought to be first washed, and then exposed for some time to the air.

Let us now suppose that a dozen specimens are procured. Over one of the boards lay two or three sheets of the paper, on the uppermost of which spread out the plant to be dried, unfolding its various parts, not, however, so as to injure its natural appearance. A few of the flowers and leaves ought to be laid out with particular care. Over this specimen lay half a dozen sheets of paper, on the uppermost of which lay another plant as before, and so on successively, until the whole are disposed of. A few sheets are then laid upon the last, and a board placed over all.

Plants, viewed with reference to drying, may be divided into two classes, the one comprehending those which being thin, soft, and flexible, require little pressure to reduce them to a level, the other including such as being stiff and thick require much pressure. Supposing the above plants to have been of the first class, we lay upon the upper board one of the smaller weights. A series of more stubborn specimens being, in like manner, placed between other two boards, we lay one of the larger weights upon them.

Should more specimens be collected next day, they are disposed of in the same manner; and thus successively. At the end of three days generally, the plants first laid in are to be taken out, together with the paper about them. They are to be laid in fresh paper, three or four sheets being placed between every two plants, and the whole put between two boards, with a weight over them. The second series is similarly treated next day, and so on. The paper from which the plants have been removed is to be dried for future use.

There will thus be four sets of plants; two in the first stage of drying, and two in the second stage. The plants of the second stage sets should be taken out about three days after they have been deposited, and after dry paper has been put about them, returned to

their places. The paper may thus be shifted until the plants be perfectly dry, when they are finally removed. Each plant is then placed in a sheet of dry paper, and along with it is deposited a slip of paper, on which are written the name of the plant, the place in which it was gathered, the time of gathering, the soil, and such other circumstances as may tend to elucidate the history of the species. Thus prepared, the plants are packed up in bundles, which gradually enlarge their dimensions, or increase in number till the end of the season.

Having in this manner arranged a certain number of plants, the collector has now to rearrange them. For this purpose he has to procure a quantity of good stout writing or printing paper of large size, folded into folio, which is to be stitched in coloured covers, making fasciculi of five or six sheets each. A quantity of fine large post or other writing paper, in half sheets, folio size, cut round the edges, is also to be at hand. Let a number of narrow slips of different lengths be cut from a piece of the same paper, and let some prepared isinglass or dissolved gum be in readiness, together with a camel-hair pencil. Take a dried plant, lay it upon a leaf of the fine cut paper, then fasten it down by means of a few of the slips, to which isinglass or gum has been applied, laid across the stem and some of the branches. Two or three slips are generally sufficient for a plant or specimen. In this manner all the dried plants destined to form part of the herbarium are treated. Write the name of each species on the top of the leaf, and transcribe the notice respecting the place in which it was gathered, etc., at the bottom. Then arrange the plant according to system, and lay one between every two pages of the fasciculi. The fasciculi are formed into bundles, by being laid alternately up and down upon each other, as they do not lie conveniently when the heads of the plants are all at the top of the bundle, because the stalks and roots are thicker than the flowers. These bundles, consisting each of ten fasciculi, may be covered by pieces of paste-board tied by strings. The collection is kept on the shelves of a cabinet, or in a chest. To prevent the attacks of insects, it is necessary to keep beside it a piece of sponge soaked full of rectified oil of turpentine; and to ensure it against decay from damp, it ought to be kept in a dry and well-ventilated place.

The above is an orderly method of forming a herbarium; but many other expedients are resorted to. Most plants dry sufficiently well between the leaves of old books, and many collectors save themselves the trouble of forming a neat collection, by huddling up their specimens in the least expensive or laborious manner.

Another method of putting up dried plants is the following:—The specimens are fastened to leaves of stout paper of uniform size; the species are then arranged in order, and all those of the same genus are placed within one or more sheets of paper, on the outside of which the generic name is written. The generic fasciculi are then collected into bundles, on which are written the names of the classes

and orders. Some persons keep their specimens loose, within sheets of paper. This method is the most convenient for the minute examination of the plants, but has disadvantages which render it inexpedient in ordinary cases.

VILMORIN ON THE FORMATION OF RACES, VARIETIES, AND HYBRIDS IN PLANTS.

BY W. H. MURRAY, N. B.

M. VILMORIN is well known to be more than ordinarily competent to speak upon this question, both from practical acquaintance with the subject, and study of the theoretical question. His observations and experiments form a continuation of those of his father, and date from half a century back. In the *Revue Horticole* I have explained my views, and they are well deserving of the attention both of the scientific man and of the practical cultivator. The following fragments, selected from his essay, and accompanied with a few notes, were published by M. Alphonse Decandolle, in the *Bibliothèque Universelle de Genève*, for August, 1852:—"RACES;" *i. e.*, modifications of the species perpetuated by seed.—"If we reflect on what is occurring in a seed just sown, and about to give birth to a new individual, we may regard it as attracted—as regards the characters which the nascent plant is to possess—by two distinct and opposite forces (the word *force* is only used here in a comparative sense, and to render more clear the effects which we have to describe. It will be readily imagined that the cause—probably very complex—which produces these, cannot be classed with a *force* capable of direction and measurement, such as is understood by geometers). These two forces, which act in contrary directions, and from the equilibrium of which results the fixity of the species, may thus be conceived; the first or centripetal force, is the result of the *law of resemblance between children and parents, or atavism*; the result of its action is to restrain within the limits assigned to the species the aberrations produced by the other force." The author here takes the word *atavism* in a wider sense than is commonly adopted, and departs from the sense indicated by the Latin word *atavi*, forefathers. The term *atavism* is applied to the resemblance of individuals—not to their parents in the first degree, but to ancestors of more distant connection (*Decandolle*; *Physiologie Végétale*, vol. ii. p. 737). However, M. Vilmorin soon returns to the common meaning of the word (Alph. Decandolle). The second or centrifugal force, resulting from the *law of individual differences*, or of *idiosyncrasy*, causes each of the individuals composing a species, supposing them even born from a single individual or couple, to present difficulties which constitute its peculiar physiognomy, and produce that *infinite variety in unity* which characterises the works of the Creator. For the sake of simplicity,

we have just supposed atavism to constitute a single force ; but when we reflect on it, we see that it presents rather a collection of forces acting pretty nearly in the same direction, and is composed of the influence or individual attraction of all the ancestors. Now, to facilitate the comprehension of this force, we must first consider abstractedly the form of resemblance to the mass of ancestors, which may be regarded as the attraction of the *type* of the species, and for which we shall reserve the name of atavism ; then we must consider separately, and in a more special manner, the attraction or form of resemblance to the actual parent, which, less powerful, but acting at a smaller distance, tends to perpetuate in the progeny the characters peculiar to the immediate parent. So long as the parent has not departed in a material degree from the type of the species, the two forces act parallelly, and are blended ; and the variations which may follow in such a case, through the law of idiosyncrasy, may present themselves indefinitely in all directions, without exhibiting a peculiar leaning to any one. It is different when the actual parent has varied in a marked manner from the type ; the force of resemblance to the actual parent then becomes combined with that of the individual variations, and the result is an excess of deviation in the direction of the resultant of these two combined forces ; or, if it be preferred, the individual variations will then radiate, not round the common centre of the type, but round a point situated on the line which separates the type from the variety first obtained. Abandoned to nature, individual variations almost always perish in the superabundant mass of individuals which are unceasingly undergoing destruction. Hence the fixity of natural species. But when collected by man, these variations are protected, their descendants become multiplied ; obeying, then, the more complex laws which govern them, they produce their numerous modifications, which man has been able to fix for his own service. It is thus also that the influence of man, in exclusively choosing modified individuals to multiply the progeny, supplies a counterbalance in his constant efforts to the equally constant force of atavism, and thus succeeds in *emancipating* or fixing modified races. From the preceding considerations it will be evident that one of the points, which we regard as most essential, consists in combating, as efficiently as possible, the force which we have called *atavism*. Now this force, less direct in a manner than that of resemblance to the immediate parent, may perhaps act with great persistence. If I might use another comparison, borrowed from the laws of mechanics, I would say that on account of the distance of its point of origin, its decrease takes place in an almost imperceptible measure, in the course of the small number of generations on which man can exercise influence ; while the decrease of the other force (that of resemblance to the actual parent) goes on in geometrical progression. I have therefore been led to set up a theory, which, however, I only present here now with extreme hesitation, on the subject of the course to be pursued in endeavouring to obtain varieties from a plant

not yet subjected to modification. To obtain from a plant not yet modified varieties of a kind determined beforehand, I first apply myself to producing variation in any direction, selecting for the reproducer not that one of the accidental varieties which approaches nearest to the form I wish to obtain, but simply that which differs most from the type. In the second generation the same care would lead me to choose a deviation the greatest possible at first, then the most different from that which I should have chosen in the first place. The necessary result of following this course through several generations is an extreme tendency to vary in the product thus obtained. A further result—and this is the principal point in my opinion—is, that the force of atavism, exercised across very divergent influences, will have lost a great portion of its power; or, if I may again have recourse to that comparison, will act in a broken, instead of a straight and continuous line. It is only after having attained this result, which I shall call, if I may use the word, “destroying the polarity of the plant” (*affoler* is the word used), “that we should commence the pursuit of the variations approaching the form which we wish to obtain—a pursuit which will be facilitated by the enormously increased number of variations produced by the foregoing proceedings. We must then avoid variations which may present themselves, with the same care as we sought them at first, in order to give to the race we are endeavouring to form *constancy of habit*, which will be so much the easier to obtain, that the atavism—that incessant cause of destruction of the races of human creation—will have been weakened, by the intermediate links through which we have forced it, to exercise its influence. It will be seen, then, that in our view there are two very distinct phases in the pursuit of varieties—phases during which the courses to be followed are diametrically opposite. Up to the present time the first has been completely abandoned to what are called sports of nature; and the care of horticulturists has been limited to propagating and fixing accidental varieties. Perhaps it will appear premature to advance that this first phase may be subjected, equally with the second, to the influence of man. Nevertheless, the facts which have led me to this opinion are now sufficiently numerous to allow me a well-grounded hope of being able, before long, to show examples of the application of this method. For some time past there has been an appearance of proceeding in this direction, in the recommendation of artificial fertilization, for impressing on a type previously invariable a first modification, which may tend to a large number of others; but this plan has been applied most erroneously hitherto rather to varieties than to species. It seems requisite here to enter into certain special details, in order to render comprehensible the idea I entertain of the part which hybridity may play in the *creation of varieties*. The number of plants really hybrids, or results of the crossed fertilization of two distinct *species*, is exceedingly limited; and even their existence is denied by some physiologists who refuse to their *mules* the

power of reproducing by seeds. At the same time, certain sets or varieties in actual cultivation have, in my opinion, an evident hybrid origin. We may imagine in this case that the hybridation has only acted in the direction of destroying the polarity" (*affollment*), "and that the varieties to which they may give birth will only constitute distinct races, through a certain number of generations. As to the custom of fertilization *crossed between varieties*, they enter into the same mode of action, considerably increasing the extent of variation in the varieties already not very stable by themselves. It is to this class that belong the enormous quantity of hybrids with which florists fill their catalogues. Multiplied by divisions, their varieties form for them the source of interesting operations; and their excessive variability then becomes an advantage, since each sowing of their seeds produces new forms, calculated to satisfy the incessant desire for novelties of this kind manifested by amateurs."

NOTES ON NEW AND SELECT PLANTS.

1. AMPHICOME EMODI. Syn. *Incarvillea Emodi*. Nat. Ord. *Bignoniaceæ*. This very handsome flowering plant is a native of Emodi, in Northern India, where it was discovered growing upon the mountains on the Suen range of hills. Many of our readers know the pretty *Amphicome arguta*—the *A. Emodi* is *much handsomer*. It is a *perennial*, the stems dying down annually. It grows from one foot to one and a half high. The neat foliage resembles that of the garden *Burnet*, but more robust. The flowers are produced in terminal heads, at first *corymbose*, but afterwards *racemose*. Each blossom is funnel bell-shaped, the tubular part about three parts of an inch *wide*, and an inch and a quarter long; the five-parted flat limb (front of flower) is about two inches across. The tube is orange, the limb a rosy peach colour, and being produced in profusion, it is very showy and handsome. Seeds of this beautiful plant were sent to the Royal Gardens at Kew by Major Vicary, and a plant bloomed there in October last; it had been kept in a cool frame. (*Fig. in Bot. Mag.* 4890.)

2. CÆLOGYNE SPECIOSA (*the showy*). Nat. Ord. *Orchideæ*.—Mr. Thomas Lobb sent this fine species from Java to Messrs. Veitch several years ago. It is a free-growing and free-flowering stove plant. Each flower-stalk rises from four to six inches high, bearing one or two very large *drooping flowers*. Sepals and petals long, rather narrow, of a pale olive-green colour. *Lip* very large, two and a half inches long and one and a half broad; ground-colour principally yellow, variously tinged, blotched, and veined with rich blood-red or pitch colour; the broad terminating portion is white. A very interesting species. (*Fig. in Bot. Mag.* 4889.)

3. CORDIA SUPREBA. Nat. Ord. *Boraginææ*.—A stove shrub, growing two to three feet high; leaves six to eight inches long and three

broad. The flowers are produced in terminal cymous heads, white tinged with yellow. Each blossom funnel bell-shaped, large; tube an inch and a half long, limb two and a half broad. Each terminal head has about twenty blossoms. (*Fig. in Bot. Mag.* 4888.)

4. *DELPHINIUM CARDINALE* (*Scarlet-flowered Larkspur*). Nat. Ord. *Ranunculaceæ*. Our gardens have long been adorned with *blue*, *white*, and *purple* coloured Larkspurs, but the greatest acquisition is the species under consideration, having large, brilliant, *rich scarlet flowers*, with several small centre petals that are *yellow*. Mr. William Lobb discovered it in California, and sent it to Messrs. Veitch. It is an *annual*, as hardy as the other annual kinds are. It grows from two to three feet high; the leaves are large; the flowers are produced in *long* terminal panicles. Each blossom is rather drooping, two inches long, including the spur, and an inch and a half across the front. It blooms in great profusion, and will prove one of the finest acquisitions to the flower garden that has been introduced for many years. It bloomed most charmingly in the Royal Gardens at Kew during the latter part of last summer. (*Fig. in Bot. Mag.* 4887.)

5. *DENDROBIUM MACCARTHIE* (*Mrs. MacCarthy's Dendrobium*). Nat. Ord. *Orchideæ*.—A very handsome flowering plant, native of Ceylon, but rare, and it is always found *pendent* from the trunks of large trees, in the forests about Ratuapoor and towards Galle; generally known to the natives under the name of Wissak-mal, which means "Rainy-month flower," or "May-flower." The stems are about two feet long, as thick as a goose-quill. The flowers are in racemes; each blossom is somewhat in appearance like a *Gladiolus cardinalis*, about three inches long, and nearly four wide at the front, *sepals* and *petals* of a rosy purple colour, and the tip white, with numerous small purple spots on the throat, a dark purple blotch at the centre margined with pale purple, having also seven purple streaks. *Column* white. It merits a place in every stove collection. (*Fig. in Bot. Mag.* 4886.)

6. *CLEMATIS PATENS*, var. *Amalia*. Nat. Ord. *Ranunculaceæ*.—Another pretty climber, belonging to the section of *C. azurea*. Each blossom is about five inches across, petals nearly an inch broad, tapering from the centre each way. Up the middle of each petal it is white, and the rest of a lavender-blue colour. M. Van Houtte has figured it in his excellent *Flore des Serres*, 1051. Plants may be obtained from his establishment.

7. *CLEMATIS PATENS*, var. *Louisa*.—This is a beautiful flowering plant. Each blossom is four inches across, petals *broad*, pure white, and the centre of filaments forms a violet-coloured eye. It is remarkably handsome. (*Fig. in Flore des Serres*, 1052.) Plants may be had of M. Van Houtte, through the order of any nurseryman in England.

8. *CANNA LILIFLORA*.—A magnificent flowering plant. It has fine large foliage, and its noble racemose spikes of flowers grow to

three or more feet high. Each blossom (Lily-formed) is about five inches long, and four across the front. The ground is white tinged with yellow, delicate rose, and green. It merits a place in every stove. (*Fig. in Flore des Serres.*) This very valuable acquisition was discovered at Veraguas, in Central America, by M. Joseph Van Warscewicz, and is now in M. Van Houtte's establishment; of whom plants may be had, or by order of any nurseryman in England. It succeeds well in the greenhouse, and in the open-air bed in summer.

9. *ISOLOMA TRIANÆI*. Nat. Ord. *Gesneriaceæ*.—A fine stove plant, first discovered by M. Triana (who was in the service of M. Linden, of Brussels) at New Granada; and subsequently obtained by M. Warscewicz at Santa Martha. It has bloomed in the Botanic Garden at Zurich. It has somewhat the appearance of a *Tydaea* or *Achimenes picta*, with entire green leaves of an oval shape, two and a half inches long. The flower-stems rise about two feet high. The flowers are produced in long spiked racemes, and in side axillary umbels, of three or four blossoms in each. Each flower has a long scarlet foot-stalk, and the blossom is ventricose tube-shaped, one inch long, of a bright cinnamon-red colour, with a yellow inside. It is a very neat, profuse-flowering plant, well deserving a place in every stove or warm greenhouse. (*Fig. in Flore des Serres*, 1057.)

10. *HIBISCUS ROSA-SINENSIS ALBO-PLENO*.—The double crimson and double buff Hibiscus have long been ornaments in our stoves. We have the pleasure now to notice a double white flowered. It is a free bloomer, and contrasts beautifully with the other kinds.

11. *HIBISCUS ROSÆ-SINENSIS AURANTIA-PLENO*.—This double orange coloured is also a beautiful addition, and very ornamental. Both the kinds are deserving a place in every stove. They may be procured at the principal London nurseries.

12. *AZALEA ALBA-LUTESCENS*.—Fine white, with a tinge of yellow at the centre, striped and spotted with red; very handsome. Messrs. Rollisson, of Tooting, possess plants of this for sale; also of the following:—

13. *A. CRITERION*.—Salmon-pink, edged with white; one of the finest of the genus.

14. *A. GLEDSTANESII-FORMOSA*.—Beautiful white, striped with cherry; a most profuse bloomer.

15. *A. DUKE OF WELLINGTON*.—Fine orange-scarlet, large size; stout petals of superb shape.

16. *A. EXQUISITE*.—Violet-pink, spotted with red, edged with white; very neat.

17. *A. NARCISSIFLORA*.—Double white; a most profuse bloomer, very pretty.

18. *A. JULIANA*.—Rich orange-crimson, numerously spotted with red, and fine shape.

19. *A. STANLEYANA*.—Bright rosy scarlet, and exquisite shape.

20. *LAPAGERIA ALBA*.—The *L. rosea* we figured some time back, since which time many of our readers have been gratified by seeing

plants of it in bloom. The present plant is of similar habit, and the flowers are *white*. It is a beautiful acquisition. Plants of it are in Messrs. Rollisson's nursery at Tooting. It flourishes in a cool greenhouse, shaded from mid-day sun.

21. *PETUNIA IMPERIAL*.—The flowers are white, and double, as those of the *Gardenia florida-plena*.

22. *GLOXINIA ERECTA-CORONATA* and the three following are of the *Fyfiana* section, viz. flowers erect, similar to the spring-flowering Gentian. The flower is white inside and outside, with a deep crimson rim at the throat.

23. *QUEEN VICTORIA*.—Beautiful rosy pink outside, inside white, and a maroon rim round the throat

24. *FLAMMEA*.—White inside and outside, with a broad blue rim around the throat.

25. *ALBA-AURICULATA*.—White inside and outside, with a cherry-coloured rim around the throat. All beautiful. They may be had of the principal nurserymen.

MISCELLANEOUS.

THE CULTURE OF FLOWERS. *By a Lady*.—I very recently met with the following remarks on the culture of flowers, and was so much pleased with them as to be induced to forward them for insertion in the first number of your volume for 1856. When summer's delightful season arrives, rarely in this country too warm to be enjoyed throughout the day in the open air, there is nothing more grateful than a profusion of choice flowers around and within our dwellings. The humblest apartments ornamented with these beautiful productions of nature have, in my view, a more delightful effect than the proudest saloons with gilded ceilings and hangings of Genoa velvet. The richness of the latter, indeed, would be heightened, and their elegance increased, by the judicious introduction of flowers and foliage with them. The odour of flowers, the cool appearance of the dark green leaves of some species, and the beautiful tints and varied forms of others, are singularly grateful to the sight, and refreshing at the same time. Vases of Etruscan mould, containing plants of the commonest kind, offer those lines of beauty which the eye delights in following; and variform leaves hanging festooned over them, and shading them, if they be of a light colour, with a soft grateful hue, add much to their pleasing effect. These decorations are simple and cheap.

Lord Bacon, whose magnificence of mind exempts him from every objection as a model for the rest of mankind (in all but the unfortunate error to which perhaps his sordid pursuit in life led him, to the degradation of his nobler intellect), was enthusiastically attached to flowers, and kept a succession of them about him in his study and at his table. Now the union of books and flowers is more particularly agreeable. Nothing, in my view, is half so delightful as a library set off with these beautiful productions of the earth during summer, or, indeed, any season of the year. A library or study, opening on green turf, and having the view of a distant rugged country, with a peep at the ocean between hills, a small fertile space forming the nearest ground, and an easy chair and books, is just as much of local enjoyment as a thinking man can desire. I reckon not if under a thatched or slated roof, to me it is the same thing. A favourite author on my table, in the midst of my bouquets, and I speedily forget how the rest of the world wags. I fancy I am enjoying nature and art together, a consummation of luxury that never palls upon the appetite—a desert of uncloying sweets.

There is something delightful in the use which the Eastern poets, particularly the Persian, make of flowers in their poetry. Their allusions are not casual, and in the

way of metaphor and simile only; they seem really to hold them in high admiration. I am not aware that the flowers of Persia, except the rose, are more beautiful or more various than those of other countries. Perhaps England, including her gardens, green-houses, and fields, having introduced a vast variety from every climate, may exhibit a list unrivalled, as a whole, in odour and beauty. Yet flowers are not with us held in such high estimation as among the Orientals, if we are to judge from their poets. Bowers of roses and flowers are perpetually alluded to in the writings of Eastern poets. The Turks, and indeed the Orientals in general, have few images of voluptuousness without the richest flowers contributing towards them. The noblest palaces, where gilding, damask, and fine carpeting abound, would be essentially wanting in luxury without flowers. It cannot be from their odour alone that they are thus identified with pleasure; it is from their union of exquisite hues, fragrance, and beautiful forms that they raise a sentiment of voluptuousness in the mind; for whatever unites these qualities can scarcely do otherwise.

Whoever virtuously despises the opinion that simple and cheap pleasures, not only good, but in the very best taste, are of no value because they want a meretricious rarity, will fill their apartments with a succession of our better garden flowers. It has been said that flowers placed in bedrooms are not wholesome. Plucked and put into water they quickly decay, and, doubtless, give out a putrescent air; when alive and growing there need not be any danger apprehended from them, provided fresh air is frequently introduced. For, spacious rooms the better kinds, during warm weather, are those which have a large leaf and bossy flower. Large leaves have a very agreeable effect on the senses; their rich green is grateful to the sight; of this kind the *Hydrangea* is remarkably well adapted for apartments, but it requires plenty of water. Those who have a greenhouse connected with their dwellings have the conveniences, by management, of changing their plants as the flowers decay; those who have not, and yet have space to afford them light and occasionally air, may rear most of those kinds under their own roofs which may be applied for ornament in summer. Vases of plaster, modelled from the antique, may be stained any colour most agreeable to the fancy, and fitted with tin cases to contain the earthen pots of flowers, to prevent the damp from acting on them, will look exceedingly well. The infinite variety of *Roses*, including small plants of the *Rhododendron*, and other plants of similar growth, are fitted for the saloon, but they please best in the library. They should be intermingled with the bookcases, and stands filled with them should be placed wherever practicable. They are a wonderful relief to the student. There is always about them a something that infuses a sensation of placid joy, cheering and refreshing. Perhaps they were first introduced at festivals, in consequence of their possessing this quality. A flower garden is the scene of pleasurable feelings of innocence and elegance. The introduction of flowers into our rooms infuses the same sensations, but intermingles them more with our domestic comforts; so that we feel, as it were, in closer contact with them. The succession might be kept up for the greater part of the year; and even in winter, evergreens will supply their places, and, in some respects, contrast well with the season. Many fail in preserving the beauty of plants in their apartments, because they do not give them sufficient light; some species do well with much less light than others. Light is as necessary to them as air. They should not be too often shifted from one place to another. Those who will take the trouble may quicken the growth of some plants, so as to have spring flowers in winter. Thus autumn and spring might be connected; and flowers blooming in the winter of our gloomy climate possess double attractions. For my own part, I manage very well without the advantage of a greenhouse. The evergreens serve me in winter. Then the *Lilacs* come in, followed by the *Guelder Rose*, *Woodbine*, and *Climbing Roses*; which I have trained in a pot upon circular trellis-work. After these there can be no difficulty in choosing, as the open air offers every variety. I arrange all my library and parlour plants in a room in my dwelling-house facing the south, having a full portion of light, and a fire-place. I promote the growth of my flowers, for the early part of the year, by steam-warmth, and having large tubs and boxes of earth, I am at no loss, in my humble conservatory, for attending them is all my own, and is one of those employments which never appear laborious. Those who have better conveniences may proceed on a large scale; but I contrive to keep up a due succession, which to a floral epicure is

everything. To be a day in the year without seeing a flower is a novelty to me; and I am persuaded much more might be done with my humble means than I have effected, had I sufficient leisure to attend to the retarding or forcing them. I cover every space in my sitting-room with the beautiful fairy things of creation, and take so much delight in the sight of them, that I cannot help recommending those of limited incomes, like myself, to follow my example and be their own nurserymen. The rich might easily obtain them without; but what they procure by gold the individual of small means must obtain by industry. I know there are persons to whom the flowers of Paradise would be objects of indifference; but who can imitate or envy such? They are grovelers, whose coarseness of taste is only fitted for the grossest food of life. The pleasures of flowers and books are, as Henry IV. observed of his child, "the property of all the world."

QUESTIONS, ANSWERS, AND REMARKS.

ON CHANGING THE COLOUR OF THE FLOWERS OF *ELICHRYSUM*, ETC.—Would you or any of your numerous readers, be kind enough to inform me how they change the colour of the *Gnaphalium* (Everlasting) flowers, and what they do it with, and which variety it is? and likewise could you inform me which is the best angle for a plant stove and a greenhouse? An answer will be thankfully received by—*A Young Amateur Florist.*

[We judge our correspondent refers to the *Elchrysium* flowers exhibited for sale in Covent Garden, the Pantheon in Oxford-street, etc., in London. They are the flowers of the *E. arenarium*, and are imported from France; there they are grown extensively for the purpose. In the natural state the flowers are yellow, but by a process of dyeing they are coloured blue, green, red, etc., as offered for sale. The plant is a hardy herbaceous plant, grows and blooms freely in this country, and may be procured at most nursery establishments. The *E. margaritissimum*, the pearl species, grows and blooms more vigorously, and having large heads of flowers, would look even better than *E. arenarium*. By the same process of dyeing any of the Everlasting flowers might be rendered more interesting by contrast of colours. The nearer south the houses can be placed the better; light and heat are proportionately obtained by natural means, and save a great deal of firing, in other respects necessary.—*Editor.*]

ON BONE-DUST IN COMPOST FOR GERANIUMS.—Can you, or some reader, inform me, through the medium of your Florist's Magazine, whether any of your subscribers are in the habit of growing Geraniums in compost of bone-dust, and, if so, in what proportion to the soil? I should also be glad to hear if it is advantageous to Dahlias, Pansies, or any other of the most popular kind of flowers.—*A New Subscriber.*

ON BLOOMING THE AMARYLLIS.—I shall feel greatly obliged if yourself or any of your correspondents will inform me which is the best way to flower the Amaryllis tribe in pots. I obtained a few roots three or four years ago, and they blossomed the first year, but not since.—*A Subscriber.*

CULTURE OF CACTUSES.—A correspondent requesting instructions on the culture of the *Cactus*, I herewith send you some practical observations, which are part of an excellent communication by Mr. Green, gardener to Sir Edward Antrobus, Bart.:—"The compost that I use," observes Mr. Green, "is an equal quantity of light turfy loam and pigeon's dung, and one-third sheep's dung, exposing the mixture one year to the influence of the summer's sun and winter's frost to mellow. When wanted for use, I had one-third of sandy peat, in both cases mixing them well together. I grow the young plants from February to July in the forcing flower-house, kept from 35° to 60° Fahr. I afterwards remove them to a shelf in an airy situation in the greenhouse, exposed to the mid-day sun, giving them plenty of air and little water. The plants that I want to flower the following September are placed in the forcing-house the first week in December, giving them very little water for the first ten days, and gradually increasing the water as the plants advance in growth. About the 1st of February I stop all the young shoots, which soon become well ripened; from this time, I decrease the quantity of water until they become quite

dry, in order to throw the plants in a state of rest. In the beginning of March, I replace them in a cold shady situation in the greenhouse, treating them as before. For plants to flower in August, I place a quantity more in the forcing-house the first week in January, treating them the same as those for September; only they are put to rest in the greenhouse a fortnight later, and replaced in the forcing-house one week sooner. The first flowering plants are put in the forcing-house the end of January, and will come in flower about the middle of March. When these plants have done flowering, and are removed from the drawing-room or greenhouse, I prune out most of the old shoots that have flowered, so that the plants are furnished regularly with young shoots for flowering the ensuing year; these plants are also placed in the forcing-house for ten days, to ripen the young wood and dry up the moisture, and are then put to rest in the greenhouse as usual; such plants will flower a second time in October. Others put in the forcing-house the middle of February will flower about the end of April; if then pruned, and dried, and put to rest as before, they will flower a second time in November, and so on in proportion. I report them at all seasons whenever the plants may require it, always observing to keep the pots well drained with potsherds, that the moisture may pass off readily. This process may be considered troublesome, but superior growth and abundance of flowers amply show the care bestowed. By the above treatment, *C. speciosus* and *Jenkinsoni* have generally produced from ninety to a hundred fine expanded flowers at one year old. The plants that I sent to the Society (May 21, 1833) were about two years old; the *C. speciosus* bore two hundred flowers, *C. speciosissimus* seventy-two, *C. Jenkinsoni* one hundred and ninety-four. I prefer growing them in wooden tubs, with nice stakes fixed to the tub, to the usual mode of supporting them by sticks driven into the ball of the plant, which I consider injures the fibre, and makes the plant appear unsightly.

STOKE NEWINGTON (near London) CHRYSANTHEMUM EXHIBITION was held on November 14, and excelled any previous one.

LARGE FLOWERED.—*Best six Varieties*: Pilot, Christine, Chevalier Dumage, Madame Bucharest, Annie Salter, Defiance, Mr. James. *Best twenty-four Varieties*: Duke, King, Themis, Madame Gordereau, Aregina, Nonpareil, Pio Nono, Beauty, Lysias, Formosum, Dupont de l'Eure, Madame Andry, Plutus, Hermione, Virgil, Arc-en-Ciel, Stafford, Leon Laquay, Rosa mystica, Anaxa, Miss Kate, Defiance, Two coloured Incurved. *Best six Pompones*: 1st. La Sultana, La Gitana, Bob, Drinc Drine, Requiui, Cedo nulli, Mr. Weatherhill. 2nd. La Vogue, Cedo nulli, Drinc Drine, La Gitana, Comte Achille Vigni, Madame de Vetry, Mr. Edwards. 3rd. Cedo nulli, Bob, Modele, Crostignac, Helene, Bijou d'Horticulture, Mr. Scruby. *Best six Anemone Varieties*: Gluck, Fleure de Marie, Marguerite d'Anjou, Sulphureum pallidum, Marguerite de York, Astre du Matin.

STRIKING CUTTINGS.—Whether will cuttings of hard-wooded plants strike quicker and best, in a hot or in a cold frame? [It depends entirely on the circumstances of the plant from which cuttings are taken. If that is excited, and growing freely, then a little heat would be best. If in a dormant state, put them in a cold frame. For instance, here are Calceolaria cuttings taken from plants out of doors; put them in heat now, and if a ticklish sort, the most of them will bid you good-bye. Place them under a hand-light in a shady border, and just keep frost from them, and every one will strike, though they may take six or more weeks to do so. Take the tops of these same plants, or cuttings, when growing freely, next March or April, and place them as cuttings in a mild hotbed, and they will strike in fewer days than they required weeks in autumn. Reason and think on this simple fact, and a key will be given you to unlock all the secrets as to the position and heat certain cuttings should have.—*Editor*.]

TREATMENT OF CANTUA DEPENDENS.—I observe that a correspondent writes that in July he procured two plants, one was placed in a stove and the other in a greenhouse. The former grew the fastest for a month, and then the foliage turned yellow, this was caused by an attack of the red spider; the warm (not hot) flue where the plant was placed had a little whitewash in which a portion of sulphur was mixed, and in a few hours all the insects were destroyed, still the plant has not yet recovered the disaster. The plant placed in a cool greenhouse has grown well, and has continued in excellent health. It is quite evident therefore that the plant will not thrive in the stove, but must be kept in

a cool, dry greenhouse, or pit-frame, if grown in pots, and in summer I find it will flourish in the open ground.—*A Subscriber.*

THE CHINESE PRIMROSE.—Allow me to correct your correspondent "R. M." in his statement that his conservatory is as gay as it well can be, with all the best varieties of this useful flower. That his plants are good, I do not doubt, but as he says that he raises them all from seed every year, I imagine that his collection would be greatly improved if he would grow a few good plants of the double purple and double white, as I think them superior to the single varieties, either for the conservatory or the bouquet; and as they are as easily cultivated as the latter, I am of opinion that no one should be without them. My method of growing them is as follows. As soon as the plants have done blooming, which is in the latter part of March, or beginning of April, I place them in any cool pit or house for two or three weeks, to renovate them after their exhaustion from blooming. I then examine them, and select what shoots I want to propagate for my next year's stock; but instead of cutting them clean off the plant and striking them singly, as is recommended by some, I layer them in the same way as Carnations, etc., are done, rounding the pot well up with light sandy soil, or pure sand, and watering with a fine-rosed pot until it is well settled. I then place them in any close frame or propagating house, until they are well rooted, which they will be in a few weeks, and ready to pot off; the largest and best rooted I put into three-inch pots, and the others in proportion, but always taking care never to over-pot them, as they do better under than over potted, and never to shift them into larger pots after September. The soil I use is composed of one-half leaf-mould, and one quarter each of loam and peat, the whole being well incorporated with small charcoal and sand.—*Gardener's Chronicle.*

DOUBLE YELLOW ROSE.—A great deal having been said about the Double Yellow Rose, the following extract from a work called "Dictionarium Rusticum," 8vo, third edition, 1726, may not prove uninteresting to your readers:—"The Double Yellow Rose bears not so well when thus natural, nor in the sun, as other Roses do, but must be placed in the shade; and for its better bearing and having of the fairest flower, first, in the stock of a Frankfort Rose put in the bud of a Single Yellow Rose near the ground; that will quickly shoot a good length; then slip into it a bud of Double Yellow Rose of the best kind, at about a foot high in that sprout. Keep suckers from the root, as in all other inoculated Roses, and rub off all the buds but of the desired kind. When big enough to bear, prune it at the approach of winter, cutting off all the small shoots, only leaving the bigger, the tops of which are also to be cut off as far as they are small. When it buds for leaves in the spring, rub off the smallest of them; and when for flower, if too many, let the smallest be wiped off, leaving as many of the fairest as the strength of the tree will bring to perfection, which should be a standard, not set by a wall, and rather shaded than in too much heat of the sun, and watered sometimes in dry weather, by which means fair and beautiful flowers may be timely brought forth."—*W. W. Page.*

PROTECTING TENDER KINDS OF ROSES.—Some of the tenderest Standard Bourbon, Noisette, and Tea-scented Roses will require winter protection. The best plan I have found to succeed is to prune in the head as desired, and then spread among the shoots branches of furze, securing them with tar-band. This covering is such that it protects wholly from injury, and at the same time admits sufficient air to prevent the too early pushing of the buds, which, if not done, they would be liable to be damaged by early spring frost. I take off the covering about the first week of March. For dwarf plants I stick furze branches into the ground, and secure them at the place by a few sticks put round. Over the roots I lay about six inches deep of dry leaves, covering them over with a sprinkling of soil, sloping to the sides as the Editor recommended for Fuchsias, etc.; this entirely preserves from injury.—*Rosa.*

NOTES ON FLOWERS.—Flowers, of all created things, are the most innocent and simple, and most superbly complex; playthings for childhood, ornaments of the grave, and the companion of the cold corpse in the coffin. Flowers, beloved by the wandering idiot, and studied by the deep thinking man of science! Flowers, that of perishing things are most perishing, yet of all earthly things are the most heavenly. Flowers, that unceasingly expand to heaven their grateful and to man their cheerful looks—partners of

human joy, smoothers of human sorrow; fit emblems of the victor's triumphs, of the young bride's blushes; welcome to crowded halls, and graceful upon solitary graves! . . . Flowers are, in the volume of nature, what the expression "God is love" is in the volume of revelation . . . What a dreary desolate place would be a world without a flower! It would be a face without a smile—a feast without a welcome . . . Are not flowers the stars of the earth, and are not flowers the stars of heaven? One cannot look closely at the structure of a flower without loving it. They are emblems and manifestations of God's love to the creation, and they are the means and ministrations of man's love to his fellow-creatures; for they first awaken in his mind a sense of the beautiful and the good . . . The very inutility of flowers is their excellence and great beauty; for they lead us to thoughts of generosity and moral beauty, detached from and superior to all selfishness; so that they are pretty lessons in nature's book of instruction, teaching man that he liveth not by bread or from bread alone, but that he hath another than an animal life.

STRIKING CUTTINGS OF STOVE AND GREENHOUSE PLANTS IN BURNT CLAY.—Three years ago I was advised to try this kind of material; and having done so with the greatest success, I can most confidently recommend it to the readers of your Magazine. My collection comprises nearly all the best of stove and greenhouse plants. Burnt clay possesses the property of absorbing *ammonia* from the *atmosphere*, which affords a constant and regular stimulus to the cuttings, and enables them very quickly to send out the radical fibres. I strike a great number of the cuttings from single eyes; that is, cut it through horizontally close under the bud, leave the leaf entire, and cut off the shoot about an inch above the bud. I plunge the pots one-third deep in a slight tan-bed. I do not lose five in a hundred cuttings so treated.—*A London Nurseryman's Plant Propagator.*

ON THE WIRE-WORM.—Having seen many inquiries respecting the manner in which the wire-worm might be destroyed, induces me to send you my method of treatment for their destruction. For nearly two or three seasons I had nearly all my *Dahlia* plants destroyed by those destructive pests, the wire-worm. After having tried various experiments, that of burnt earth succeeded entirely to my satisfaction, not having a plant the following season injured. Thinking this might prove beneficial to numbers of your readers, if you think it worth insertion it is at your service. The burnt earth may be made by burning the refuse of the garden in dry weather.—*A Florist.*

EUPHORBIA SPLENDENS.—If we take a retrospect of the plants that have been introduced into the stoves of Great Britain within the last few years, not one has preference to the *Euphorbia splendens*: the length of time the floral involucre continues expanded, and the elegant growth of the plant, if properly managed, give it a decided pre-eminence among stove plants. *Cultivation.*—Mix equal quantities of loam, peat, and rotten cow-dung with a little sand. If cow-dung cannot be got, any very rotten manure will do. *Cuttings* will strike very freely in sand. After they are struck, pot them off into sixty pots, and shift them regularly as the pots become full of roots. It is very necessary to stop the terminal stoops frequently, otherwise the plant will grow very deformed, or, as gardeners term it, be long-legged. When the pot is full of roots, the plant will flower, even if it be very small; so it must be observed, that if cultivators desire to have large plants, they must shift them frequently until they wish them to show their involucre.—*A Subscriber.*

ON BLOOMING AGAPANTHUS UMBELLATUS.—I have most successfully cultivated the *Agapanthus umbellatus*, both blue and white flowered, for some years, by the following treatment:—I put my plants under the stage in the greenhouse during the *winter months*, or a dry shed will serve as well. I give them no water while in this state. I take them out in the beginning of April, and part them to one stem, then place them in 16-sized pots (or pots one foot in diameter), using any vegetable mould, with one part sand. They are then watered to settle the mould, and placed in a warm situation. I water them twice a day in the summer months, but do not stand them in water. I have heads of flowers as large as the finest common *Hydrangea*. After they have done flowering, the old stems are cut down, and placed in a cold, shady spot till November, when they are moved to their winter quarters. They will also succeed if turned out into a bed of rich mould, and plentifully watered.

ON THE GROWTH OF PLANTS, ETC.—When plants advance but little in their growth, and assume a very dark or blue-green colour, it shows a want of water, or an obstruction to the action of the capillary attraction; and when a plant is of a light green colour, and is diminutive and puny in its growth, and there is evidently no want of water, it shows a want of carbonaceous matter, or a general deficiency of nutriment. If plants and trees grow very luxuriantly in branches, forming large leaves, and producing little fruit, it shows that there is a luxuriant supply of hydro-carbonate, or an excess of carbonaceous matter, lying at a great depth from the surface, and a want of oxygen; when the leaves and branches are deformed and distorted by blisters and blotches, and by irregular contractions and contortions of the stalks, fibres, veins, or ribs of the leaves, or when tumours break out on the leaves and shoots, it shows that an excess of putrescent carbonaceous matter containing nitrogen surrounds the roots.—*Hayward on Horticulture.*

ON VERBENA SEED.—Last autumn I saved a quantity of Verbena seed collected from a bed containing twenty of the best kinds. I have sown it in a bed with other annuals, but not one has come up. For the future, *when and how am I to sow and afterwards treat the plants*—also, will they bloom the ensuing summer?—*Emily*, July 3.

[Sow the seeds in pots, in March, on a fine and smooth surface of good loam, and after pressing the seeds to the soil, just cover them with some finely sifted, and place the pots in a cucumber frame at work. When the plants are large enough, transplant them, several into a small pot. After they have struck root, again remove them to where more air can be given, and so to inure them to the climate, that by the middle of May they may be fit to plant in the open garden, where they will bloom by the end of June or early in July, unless some casualty prevent.—*Editor.*]

MILDEW OF PLANTS.—I shall feel grateful if you will insert the following remarks on preventing mildews from attacking plants. I have, like others, made ineffectual attempts with sulphur and other substances to oppose the destructive fungus of the vine, and those of other plants, for all cultivated plants are subject to disease, and have their peculiar mildews. Seven years ago I wrote to the *Times*, saying that the sun is the cause of these diseases, and I say the same now. I have found from several years' experience, that by taking care to shade my cucumbers on the first *bright day* after several days of *dull weather*, I prevented the development of mildew. Similar experiments with vines had the same result; while, where the shade was off the glass, the plants beneath were mildewed. In support of this I may mention a large grape-growing establishment at Vauxhall, in the midst of soot and dirt. In this place not the least appearance of mildew has been seen through the years of the disease, for the glass has always been covered with soot and dirt, which has protected the plants from *sudden outbreaks* of sunshine. I have tried three remedies against mildews; shading the grape-house with canvas, and avoiding all cold draughts; covering the pits and frames with mats; and last and easiest, simply wetting the glass, and dusting over the lights with dry mould. I am thoroughly convinced that partial shading in any way is the most *effectual prevention* against mildews in plants. It gives the overgorged leaves time to evaporate and elaborate the sap, and secures the breathing pores from being injured by a *sudden* and *abundant* transpiration, when the sun comes out brightly after a continuance of cool and sunless days. I have proved two years, where vines were allowed to fall down within a few inches of the ground no mildew came upon either the leaf or the fruit. This, again, is proof positive of the shading process. If this plan could be carried out in the wine countries, I am convinced the mildew would soon disappear.—*James Cuthill, Camberwell.*

LUCULIA GRATISSIMA.—As there are many persons who have not the means at command to grow this magnificent flowering plant in a conservatory, etc., I beg to remark that by the following attention I grow it admirably in a pot. I find it is a point specially to be attended to, not to stimulate it to grow in spring and the early part of summer, as it is not naturally inclined to do. I keep my plants in the greenhouse till about the middle of June, then plant them out, balls entire, in the open border, in a situation that is warm, but shaded from mid-day sun. I take them up again, keeping all the small fibrous roots I can uninjured, the first week in September, putting them into additional sized pots, and place them in a vinery and plant-stove of moderate

temperature; they grow strongly and soon produce heads for blooming, which display their beauty and fragrance through autumn and winter.—*Senex, Middlesex.*

ON THE MAGNOLIA.—I have two Magnolia plants of *grandiflora*, which have been in my possession fourteen years, but which have not bloomed. Four years back I removed them in order to induce them to flower: but although they grow well since, there is no signs of my object being realized. If some reader of the *Cabinet* would favour me with particulars to adopt so as to obtain a bloom, I should esteem it a great kindness. They are trained on an eastern aspect of my house, and are twenty feet high.—*J. Smith, sen.*

ON THE APPLICATION OF CHARCOAL IN THE SOIL IN WHICH PELARGONIUMS ARE GROWING.—In the early part of last spring I saw an article in the *Cabinet* recommending bits of charcoal to be mixed in compost used in pot culture of plants. Having a quantity of young Pelargoniums to pot, I adopted the plan by sprinkling about one-eighth with the rich turfy loam and vegetable soil, and, having a free drainage, nothing can exceed the deep green beauty and vigour of the plants at this time.—*An Amateur.*

ON PLANTS AFFECTED WITH MILDEW.—In a former number of the *Cabinet* I observed a correspondent stated that during several previous months a quantity of his Pelargoniums and other plants had suffered from mildew, although the house was not a cold or damp one. I was similarly circumstanced, and being advised to water them at the roots once a week with nitre dissolved in water, in the proportion of a quarter of an ounce to a quart of water, I did so through the remainder of last autumn, and now have not a vestige of the mildew.—*S. R. Bennet.*

ON VERBENA SEED.—Last autumn I saved a quantity of Verbena seed, collected from a bed containing twenty of the best kinds. When and how am I to sow and afterwards treat the plants? also, will they bloom the ensuing summer?—*Juvenis.*

[Sow the seeds in pots in March, on a fine and smooth surface of good loam, and after pressing the seeds to the soil, just cover them with some finely sifted, and place the pots in a cucumber frame at work. When the plants are large enough, transplant them, several into a small pot. After they have struck root, again remove them to where more air can be given, and so to inure them to the climate, that by the middle of May they may be fit to plant in the open garden, where they will bloom by the end of June or early in July, unless some casualty prevent.—*Editor.*]

FLORAL OPERATIONS FOR JANUARY.

FLOWER GARDEN.—Annuals sown in autumn must be kept free from fallen leaves or other litter, or will rot; and towards the end of the month, if fine, sow a few more either in small pots kept in a cool frame, or sow in the open ground in patches, covering deeper than done in spring. Bulbs, protect beds of, for if the embryo flowers or leaves, even within the ground, be affected by frost, their blossoms will be defective. Flower-beds must have an addition of one-third of fresh loam, with some leaf-mould, or well-rotted manure; this will induce the plants to bloom more profusely. The upper part of the bed, in which robust-growing plants are to be, should always be richest, to encourage the plants to grow rapidly at first, and the bottom portion being poor, when the roots push into it, the growth of foliage will be checked, and the bloom will produce a finer display. Dahlias, to propagate early, put the roots into pots or beds, where bottom heat can be given immediately; the plants will be strong by the end of April. Gladioluses,—such as *Gandavensis*, *Pittacina*, and their varieties; plant a few to succeed the autumn-planted, and do so in February, March, and April, and a bloom till November will be had. Pinks and Pansies: small sticks should be pricked among the shoots, to prevent the wind twisting the plant off. Let the soil be pressed closely round the main stem. A low hedge of fir or yew branches pricked in at the edge of the bed will check strong winds. Those in pots give plenty of air. Hares and rabbits are enemies to Pinks and Carnations; if a good sprinkling of soot over the foliage be applied, the plants may be saved. Carnations, Auriculas, etc., in pots, must have all dry air allowed,

and save them from frost and excess of water. The like attention must be paid to all tender or half-hardy plants, in pots or frames; guard against wet, and remove decayed leaves. Throw out the soil where the *Ranunculus* and *Anemone* bed is to be, half a yard deep, so that it may be sweetened prior to putting in the compost in February. *Lobelias*, the tall section, must be kept from frost, and nearly dry. *Roses* and *Hollyhocks* plant as soon as possible. *Auricula* and *Polyanthus* seed sow in pots, and place them in a cool frame. Shrubs: layers of most kinds may now be made, and cuttings of *Privet*, also all deciduous shrubs, may be put in; they will succeed well if put in firmly, and each cutting be cut off close below a bud. Prune *Roses*, protect the heads of tender ones, and if they have their heads washed over with soot and lime liquid, it will kill moss and insects, and promote the health of the plants. *Tulips*, *Hyacinths*, etc.: be careful to have the soil closed well around the leaves of such as appear; mild weather will cause some to rise early; protect from frost, but remove the covering at all proper times. Box: edgings of it should always be made early in autumn, but if required now may be done. *Verbenas*: give all dry air, and have the soil barely moist; to propagate early, place some in moderate warmth; guard against green fly and mildew. If any tender plants be frozen, sprinkle them overhead with cold water, and place them in a cool shed from frost, but where they will be gradually thawed.

GREENHOUSE.—Except in very foggy weather, give all the air possible, especially where there are *Heaths*, *Epacris*, *Azaleas*, and *New Holland* plants in general, that are not required to bloom early; also water the plants in the morning that the damp may be dried up soon; apply a little fire-heat occasionally to dry the house, often stir the surface-soil in pots. Take off all decayed leaves; cleanliness is essential to have the plants in health. *Tropæolums*: the *tricolorum* and other tuberous-rooted must now be potted, in order to bloom well the coming season. *Fuchsias*: prune in, and repot the large plants required to bloom early; plants now put into higher temperature will soon push shoots, and furnish a supply for striking, to form the new plants for 1856. *Tropæolum Lobbianum*, *Hookerianum*, and *Triomphe de Gand*, are fine blooming ornaments now. *Camellias*: the soil must be regularly moist, or the flower-buds will drop; give manure-water once or twice a week; thin the flower-buds, if now crowded. *Cinerarias*: watch for the enemy—green fly; fumigate immediately one is seen; repot such as require it; also pot off *Alstroemérias*, *Ixias*, and *Oxalis*, with any other greenhouse bulbous-rooted plants, by the middle of the month. Sow seeds of tender annuals required to ornament the greenhouse early in summer. *Pelargoniums*: spread the branches, to form the plant regularly in every part by duly tying them outwards, drawing some down, to form it bushy to the rim of the pot. Fumigate the greenhouse stock of plants. *Azaleas*: place the plants of any it is desirable to increase in extra warmth, to induce an early growth, as cuttings strike much the best early in spring, rooting freely in silver sand and gentle bottom heat; the half-ripened new shoots are the best.

FORCING STOVE, FRAME, ETC.—*Achimenes*: place some of them in heat, to bloom early. Give one good watering at first, and then just keep the soil moist till the plants are about an inch long; then pot singly, or a plant or two more in each pot. Also some *Gloxinias* and *Gesnerias*, for early bloom; do not put them where they will have a strong bottom heat, for if their vegetation be hastened too rapidly, they will be likely to be destroyed. Sow seed of stove plants, hard-shelled ones steep in water heated to 180 degrees; let them remain till the water is cool, then sow. The following plants are excellent for winter blooming, and force well: *Scarlet Geraniums*, *Eranthemums*, *Justicias*, *Aphelandra*, *Poinsettia pulcherrima*, *Achimenes picta*, *Coronillas*, *Ribes*, *Lily of the Valley*, *Violets*, *Cytisus*, *Cinerarias*, *Gesneria zebrina*, *Roses*, *Persian Lilacs*, *Chinese Primroses*, *Azaleas*, *Acacias*, *Sericographus*, *Pinks*, *Tree Carnations*, *Cactus*, and *Bulbous tribes*. *Succulents* must have but little water. Sow seeds of *Cockscomb*, *Balsam*, *Globe Amaranthus*, *Salpiglossis*, *Brahycoma*, and *Chinese Primrose*, about the middle of the month, for early bloom. Also, repot *Amaryllis*, *Sprekelias*, etc. Cuttings of bedding plants may be put in, and if the old plants have not a supply, place some in higher heat to push them, such as *Fuchsias*, *Salviss*, *Heliotropes*, *Cupheas*, etc. *Bouvardias* increase best by cutting the roots into bits an inch long, and cover them half an inch with silver sand.



LAPAGERIA ROSEA var ALNIFLORA

The Floricultural Cabinet.

FEBRUARY, 1856.

ILLUSTRATION.

LAPAGERIA ROSEA, var. *albiflora*.

THIS *genus* was named in compliment to Josephine Lapagerie, wife of Napoleon Bonaparte, who was a great encourager of botany, and the cultivator of flowers in the beautiful gardens of Malmaison.

The *Lapageria rosea* is a native of Chili, from whence a plant was received into the Royal Gardens at Kew, in 1847. In June 1850, we gave a figure of it in this Magazine. Ruiz and Pavon in their description of the plants of Peru and Chili, state they had observed that the flowers vary from "rose to rose-crimson." In 1852 M. Van Houtte, in his Catalogue, describes a *white-flowered Lapageria*, and offers plants for sale, at 300 francs each. A healthy plant of *Lapageria* was sent from Chili, by M. Abade, to Professor Decaisne, at the Jardin des Plantes at Paris, where it has blossomed, producing large flowers, white, slightly tinged with a cream colour, and towards the base with a delicate blush. The flowers are borne in drooping heads of two or three blossoms in each. It is a half-shrubby climbing plant, the flowers being larger than those of *L. rosea*, and is a charming companion thereto. For some time after its introduction the *Lapageria* was found difficult to manage, and more especially so, when it was treated as a stove plant.

The history of the artificial treatment which many of our well-known plants received when first introduced, and their habits were little known, would afford some curious and instructive details for the gardener. It has hitherto been, and continues to be, too much the practice to consider every rare and valuable plant, upon its first arrival, to be tender, and thus to force upon it a treatment directly opposite to what it in reality requires. In this way many a beautiful plant has languished for years comparatively unknown, until some lucky accident or fortunate neglect has enabled it to develop its true character, and to indicate to the cultivator the exact treatment it required. The plant, whose name gives the title to this paper, seems in a fair way, like a host of its predecessors, to be persecuted with kindness. Hitherto but little success has attended the

attempts to cultivate it among the few who are fortunate enough to possess it. But now that a large number of strong plants has reached this country, there is a chance of its becoming still better known; and doubtless the well-known skill of English gardeners will soon succeed in developing its beauties. That its attractions are great there can be no doubt; and there is much probability of its proving hardy with us, at least in the more favoured parts of England. It is a native of a climate where the temperature rarely rises above sixty-five degrees. Its habitat is moist, shady woods, where it scrambles among the under-growth, and climbs about the boles of trees; for it is a climber, with dark green leaves, resembling in appearance a *Smilax* (one of which we figured in our last number), to which it is allied. Its roots are thick and fleshy, like those of the *Asparagus*. In the flowers, however, consists its great beauty. They are bell-shaped pendants, of the richest and deepest rose colour, and measuring some four inches across—a glowing description truly, but a correct one. Now a word or two about its treatment. Up to the present time failure has been the rule with those who have attempted its culture. Let us endeavour to investigate the causes, and to ascertain the treatment its nature and habit require. Growing naturally in cool, moist, and shady woods, it was scarcely to be expected that when placed in an artificial climate of a directly opposite character, viz., a high and airy temperature, with a strong light, it would exhibit its natural health and vigour. On the contrary, it did exactly what any other plant of a similar nature, and under a like change of condition, would do—it cast its leaves, and otherwise indicated its repugnance to its altered circumstances. If the several attempts that have been made to cultivate it are investigated, it will be found that in proportion as artificial heat has been employed, and strong light permitted, so has failure resulted in an equal ratio. The natural conditions under which it flourishes clearly furnish data upon which to found its artificial management; a cool, moist, and shady situation must be afforded it; strong light it abhors, the direct rays of the sun especially. In an ordinary plant-stove it has proved altogether uncultivable; in a warm greenhouse it has languished, *while in a cool and shady one at Kew* (the temperate fern-house) *it succeeds most admirably*. From the nature of its roots, it is doubtless a plant tenacious of life, and not easily destroyed under ordinary treatment; but, like many other fine plants, it requires peculiar culture for its perfect development; that having been ascertained, we may now expect to behold its noble blossoms developed in our gardens as in its native woods on the mountains of Valdivia, and the neighbouring countries. And of its hardiness in the open air in this country, if a *proper mild situation* be selected, and established plants employed, there is (judging from the physical character of its native country) every probability. In addition to the local conditions—the shade of the woods under which it luxuriates—moisture and medium temperature are prominent features of the

tract of country it inhabits. Many parts of Great Britain possess similar characteristics in a corresponding degree. The plant wants damp shade, and a mild climate. During the early part of last year a correspondent wrote us—"I have succeeded in raising a few berry-like pericarpiums of seeds in 1853, which remained on the plant *all winter*, and ripened during the last summer (1854). I immediately sowed a portion of the seeds, which to my joy have vegetated, and afford me the prospect of securing plants." The seeds are of a globular form, and semi-transparent."—*Amicus, Rosemont Gardens, Liverpool*

REMARKS ON THE MANAGEMENT OF MESEMBRYANTHEMUMS.

BY JOSEPH HARTLEY, ESQ., AN OLD AMATEUR PLANT-CULTIVATOR,
FLORA VILLA, BIRMINGHAM.

WHENEVER a subject of floral interest presents itself to my notice, it affords me much pleasure to be able to offer a few remarks upon it; and my attention is now directed to the extremely beautiful though little cultivated genus, *Mesembryanthemum*, having a bed of them growing in the open ground, under a south aspected wall, and which, during sunny days, compose a blaze of beauty. Besides which I grow 200 plants in my greenhouse. There are upwards of 300 distinct species and varieties grown in this country, and I possess 162 of them in my collection, all of which possess some peculiar claims to beauty and interest, both in foliage and flowers. Producing annually an immense number of flowers of the most brilliant colours, and yet of the most extensive variety, having thick, fleshy foliage, of a most singular and interesting character, and being besides most easily cultivated, this beautiful genus appears to me to possess charms and merits of a more than ordinary nature; and I am at a loss to imagine how many cultivators can willingly neglect, or wilfully despise a genus of plants which certainly deserves to rank amongst the most pleasing and delightful of nature's productions.

These plants require a great degree of solar light; and though this may safely be said to be one of the most important features in their cultivation, there are other particulars which require equal attention and consideration. It is generally believed, that if these plants are placed in a poor and sterile soil, they may be induced to flower more profusely, and that the flowers will be finer and of better colours. To a limited extent this notion is correct; but it is a great error to suppose that this treatment will of itself be sufficient to produce the effect above mentioned. It is also imagined that, by withholding water from these plants for a time, their flowering may be facilitated, and the flowers rendered finer and more abundant; this is likewise to a great extent an equally erroneous hypothesis, if the success be attributed to this treatment alone, as may be sufficiently proved by placing

the various species of this genus in a sterile soil, administering water very sparingly, or wholly withholding it for a time, and keeping them in a shaded or gloomy situation, where the rays of the sun can never reach them; the result of which will be, that they will either produce few and insignificant flowers, or be altogether destitute of them. But if, instead of being kept in this unfavourable position, they are placed in an open and exposed situation, where they can receive a great degree of solar light, I find they will speedily produce a most brilliant display of flowers, and these will continue expanding for a great length of time. It therefore plainly appears that it is the *influence of light* which causes these plants to flower so profusely, and not the nature of the soil or the quantity of water administered; though these latter doubtless contribute in some degree to produce the above desirable effects. Indeed, this must be abundantly evident to every intelligent cultivator who has been accustomed to place these plants in the open air; for it is irrational to suppose that poverty of soil or scarcity of water alone would cause them to flower so freely. *Mesembryanthemums*, like most other succulent plants, I find require a great degree of solar light to enable them to produce their flowers in perfection; and whether they are kept in the greenhouse or in the open air, this important particular, in order to success, must be duly and properly attended to, otherwise disappointment will follow. During the summer months, however, many of the species will flower better in the open air than if kept in the greenhouse, as in the former situation they receive a far greater degree of light.

I use a rich, light loam, with a slight mixture of very rotten dung, and a trifling admixture of lime-rubbish with the above, or a good proportion of river or white sand, which is very necessary, if not essential, to cultivate, or at least to flower, these plants in a superior manner. With respect to the quantity of water which they require, I am averse to administering to them too large a supply at any time, but more especially in the winter; and am of opinion, that so long as they are kept from withering or shrivelling, they cannot be too sparingly watered at all seasons; an attention to which point doubtless contributes to increase the number of flowers.

They may all (except a few species which are of only annual duration) be propagated by cuttings, which should be taken off from the extremities of the young shoots about the month of May, or from that time till the month of August; and, like those of most other succulent plants, they require placing in a shady, dry situation for a few days, till they begin to shrivel, when they may be planted numerously into shallow pots, in a very light sandy soil, with an abundance of drainage materials in the bottom of the pot. They should be placed in a slight, dry heat, and carefully shaded from the sun till they have struck root, watering them occasionally, but with caution, as they are very liable to rot when any superfluous moisture is collected about them. When struck, they may be potted singly into very small pots, in a compost

of one-half light loam, one-fourth well-decayed manure, or leaf-soil, and one-fourth, or less, of lime-rubbish broken fine, and sand, placing them in the coolest part of the greenhouse, watering them sparingly, and keeping them as close as possible to the glass, so as to receive the full benefit of solar light. When the roots appear to have filled the pots, they must be repotted into pots of a larger size, in a similar compost; and during the whole period of their growth it is important that they should not be allowed too much pot-room, as they usually become straggling and unsightly if they are stimulated or suffered to become too large.

Plants raised during the summer of one year are suited to plant out into the open ground in the spring of the ensuing season, or they may be allowed to remain till they are two years old before they are thus treated; for they invariably flower better when they are well established. The situation chosen for them should be a border, with a southern aspect, as they delight in receiving the full influences of the sun, and indeed their flowers will seldom expand unless the sun is shining on them; the border should be slightly elevated above the surrounding surface, for the purpose of preserving the plants from superfluous moisture; and the sub-soil should, if possible, be firm and hard. I annually plant out a number of these plants in a small border in the front of an ornamental stove, and in this situation, being fully exposed to the sun, and on a rather rocky sub-soil, they flower most beautifully and profusely, the soil of the border being very similar to that before recommended, but with a less proportion of sand and lime-rubbish. A rockery with a southern aspect is likewise a most excellent situation for them, in the crevices of which they may be inserted in a soil introduced for the purpose, and they will there be effectually preserved from any superfluity of moisture. But they will seldom be found capable of enduring the open air throughout the whole season in this country, and therefore it is necessary to remove them from the ground in the autumnal months, and place them in pots of a sufficient size to be kept through the winter in the greenhouse, or succulent house, with very little water, and a temperature just high enough to exclude frost. They should never be pruned, for when they become old and straggling it is better to throw them away at once, having previously raised a stock of young plants to supply their place.

The annual species require very little attention, as it is only necessary to collect the seed as soon as it is ripe, and sow it in a very light soil, keeping it in an airy part of the greenhouse till it vegetates, and afterwards potting the young plants singly into small pots, and treating them according to the preceding directions with regard to soil, situation, and water.

Thus treated, there are few plants which reward the cultivator with a greater profusion of showy blossoms of the most lovely and brilliant colours than the numerous species and varieties of this genus,

and they are equally within the reach of the nobleman and the amateur, and may be successfully cultivated in the garden of either, provided due attention is given to the subjects of light, soil, and watering, as here detailed.

GREENHOUSE CLIMBING PLANTS.

BY AN AMATEUR CULTIVATOR IN SOUTH DEVON.

IN a recent number of the *Floricultural Cabinet*, a correspondent requires an answer on greenhouse creepers; I therefore take the liberty, through your widely circulated and intelligent publication, of forwarding a descriptive list of such as I grow—this section of plants (climbers) being a great favourite of mine—as well as an attempt to make a small return for the useful knowledge many others have afforded me in this Magazine.

The following kinds are handsome, as well as free bloomers:—

Tecoma spectabilis. The rich green shining foliage, and its large, waxy-white, funnel-shaped flowers, with a crimson eye, render it a charming plant. The panicles of flowers hanging down are exceedingly pretty.

Bignonia grandiflora is a climbing shrub, growing ten or twelve feet high, but it commences flowering when two or three feet high; its flowers are produced in panicles, each flower being two and a half inches across, and of a deep red colour. It was introduced from Japan many years ago, and should be grown in a border or a large pot, in a rich loamy soil.

Clematis azurea grandiflora is a beautiful flowering plant; its flowers are of a pale violet colour, four inches across. It may be cultivated in a pot or border of loam and peat. It flowers in April and May; introduced from Japan in 1837.

Clematis florida bicolor (Sieboldii) is a beautiful showy flower, which is of large size, and of a greenish-white colour; it has an Anemone-like centre of a dark purple; this and the last species are hardy, but well deserve their room in a house. It blooms in April and May; a native of Japan.

Hoya carnosa is an old plant, but pretty, and free to cultivate in a pot or border; it resembles an Asclepias (it is commonly called the Wax Plant). It flowers throughout the entire summer.

Kennedyia rubicunda is a rapid grower, and will not display its beauty except in the greenhouse border. Its flowers are of a dark red, and plentifully produced, in April and May. It is a native of New Holland, and delights in a sandy peat soil, with plenty of drainage.

Kennedyia Marryattiana. This is a dwarfer species than the last, and may be cultivated in a pot of peat and loam; its flowers are of a crimson-purple colour. It is a native of New Holland.

Kennedya coccinea is a small and pretty species for pot cultivation; it grows and flowers freely in sandy peat well drained, blooming in April, May, and June. A native of New Holland.

Kennedya glabrata. This is a neat and handsome species, and may be cultivated very successfully in a pot of sandy peat. Its flowers are produced in spring, of a fine crimson colour. A native of New Holland.

Kennedya monophylla produces an abundance of blue flowers in racemes; it should be grown in a border of loam and peat; it grows eight or ten feet high. A native of New Holland.

Kennedya monophylla longiracemosa. The same as the last, but its flowers are of a lilac colour.

Loasa lateritia is a plant of rough appearance, but deserves cultivation for its easy culture and showy flowers. It may be cultivated successfully in a pot of rich loam; it blooms all the summer. Introduced from Tucuman.

Lonicera Japonica is an evergreen Honeysuckle, producing a sweet odour, and an abundance of pale yellow flowers; it grows eight or ten feet high, blooming from June to September. It is a native of Japan.

Passiflora Decaisneana. This new and splendid species was figured in this Magazine in January, 1855. I obtained a plant, and it bloomed admirably in my greenhouse last summer. Its rich crimson blossoms, adorned with its numerous blue and white thread-like parts of the nectarium, are exceedingly handsome. It grows rapidly and blooms freely.

Passiflora filamentosa. This is a neat and pretty species; flowers of a light purple, blooming all the summer; it delights in a rich loam and peat soil. A native of America.

Passiflora incarnata is a free-blooming species, the flowers are flesh coloured. This and the last-mentioned species should be cultivated in the border, in order to succeed well.

Passiflora Kermesina is a small and beautiful species, requiring a warm greenhouse; it delights in a rich loam and peat soil, well drained. Its flowers are of a fine rosy crimson colour.

Philibertia grandiflora is a neat and curious little climber for a pot; its flower are greenish-yellow spotted with purple, blooming from May to July; it delights in a rich loam and peat soil.

Thunbergia alata may be trained to a circular trellis four feet high; its flowers are of buff colour, with a dark purple eye, and are produced all the summer. A rich loam suits it best. The *T. leucantha*, white, with dark eye, and the *T. aurantiaca*, of a fine orange, with dark eye and large flower, alike deserve a place in every greenhouse.

Tropæolum tricolorum is one of the most beautiful creepers in cultivation; it may be grown in a pot of sandy loam, and be trained to a trellis. To prevent drought injuring its roots, its pot should be placed in a larger one and filled round with damp moss

or sand; it flowers all the spring and summer. Introduced from Peru.

Tropæolum brachyceras is a plant of the same habit as the last mentioned, and requires the same treatment; its flowers are yellow, and blooms all the spring and early summer months.

TREATMENT OF CHORIZEMAS.

BY MR. FANSHAW, A FORTY YEARS' PLANT-CULTIVATOR IN LONDON.

THIS genus is generally considered difficult to cultivate, but I have grown them with considerable success by pursuing the following method. The soil I use is a sandy, fibrous peat, well broken with the spade, but not sifted. The best time for potting is March or April; care must be taken not to over-pot the plants, or injure the roots while potting, and the soil must be made perfectly firm and compact about the roots, and the pots well drained; they must then be placed in the greenhouse in an open, airy situation, and not crowded among other plants. It is also preferable to keep them in the greenhouse during summer, but in hot weather they must be shaded for a few hours each day during sunshine. They require a reasonable supply of water; that is, they must not be sodden nor left to get too dry. They may be propagated in the following manner. Cuttings should be taken off while the wood is young, and carefully prepared; take off the bottom leaves with a sharp knife, and make a clear cut just through the joint; the cutting-pot should be drained, and then filled to within two inches of the top with the soil before spoken of. On the top of this put a layer of white sand, into which plant the cuttings, making a little hole for their reception with a small stick. When the pot is full, give them a steady watering with a fine rose, after which place a clean glass over them. In this state they may be removed to the propagating house, where the temperature should be about 65°, and plunged in a little sawdust or sand. They should be shaded from the sun, which can easily be done by placing a sheet of coarse paper over the glasses. As soon as the cuttings are rooted, which may be known by their beginning to grow, they must be potted off, taking care not to injure the roots, and they must be covered again for a week or fortnight, till they make fresh roots, after which they must be gradually inured to the greenhouse, and treated as old plants.

CULTURE OF DOUBLE ANEMONES.

BY MR. JAMES SMITH, AN AMATEUR MIDLAND FLORIST.

IN a late number of the *Cabinet* a correspondent wishes to know the soil most suitable for Double Anemones. Having been very success-

ful in the cultivation of that beautiful class of plants, I beg to offer my simple method of culture. About the beginning of October I well dung my bed, which is a strong loam, with the dung from an old hotbed; I then dig it to the depth of eight or nine inches, mixing the dung well with the loam. I then cover my bed with a mixture of half light vegetable soil and half sea sand. I plant the roots about six inches apart and two inches deep. In March, if the weather be dry, I water the bed with manure-water. By this simple method I never fail in having a splendid bloom of fine Double Anemones.

DESTROYING THE RED SPIDER IN PLANT STOVES, GREENHOUSES, ETC.

BY A PRACTICAL GARDENER.

As far as my knowledge extends, Mr. Speechley was the first individual who recommended sulphur for the destruction of the Red Spider (*Acarus telluricus*); and in most cases, by his manner of application, it was a certain cure, viz., by brushing every leaf and stem with the mixture. However, from the length of time it required, connected with the tedious operation of separately brushing both the under and upper surface of every leaf, rendered it almost impossible to do it to any extent.

Another great objection was, the friction of the brush often injured the leaves, so that those who had sufficient perseverance to go entirely through with the operation, generally found, when they had finished, the plants they had been dressing were considerably damaged. This led some persons to start the erroneous idea of washing the flues with sulphur, under the supposition that it would *prevent the insect's appearance*; judging very wisely, that to prevent a disease is far better than to cure it. [If the flues are thus washed, excepting a few yards of the part nearest to the fire, where it is of greatest heat, there will not be the least danger, and a *gentle heat* will be sufficient to produce a *fume* from the sulphur which will *destroy* the insects, be they many or few. The air must be impregnated with sulphureous gas to prove effectual.—Ed.] I know from experience that sulphur in an *ignited state* will destroy either animal or vegetable life, and to apply any quantity of it to those parts of the flues, subject to *great heat*, will always be attended with serious if not fatal consequences. Another train of insurmountable difficulties presented themselves under the old system; the form and texture of the foliage of many trees and plants are so small and delicate, that no person could effectually clean with the brush, but the most that could be accomplished was to just preserve the trees from being actually destroyed by the insects. We very frequently find this insect *attack* our choice fruit trees against the walls in the open air in dry summers

and often so contiguous to the hothouses that the old method of brushing the leaf was seldom found sufficient to stand through one season, without being over and over repeated, in consequence of their so rapidly increasing and spreading from the walls on the outside.

With such a multiplication of obstacles no wonder that the brushing system fell into disrepute. The chief object in destroying insects on plants is to make use of a method, where the operation can be performed with *ease, dispatch*, and *without injuring* the most delicate foliage; these and many more essential recommendations are included in a method practised by me, which was originally communicated to me by one of the best practical gardeners I am acquainted with. It is as follows:—Take half a pound of sulphur, put it in a pail, to this add as much water as will make it into a paste; then put three, four, or six gallons more of water, just as the size of the vessel will allow, stir the mixture until the water appears of a pale buff colour. With this liquid, syringe every plant and leaf in the house on which either the insect exists, or to which the least suspicion is attached; let it be repeated twice or three times a week, until every part of the foliage is saturated, or as long as the application of water from the syringe is requisite.

A house naturally damp will, of course, be less liable to the insect; here the mixture should be applied in a thicker state, and at longer intervals. Most gardeners are of opinion that there is something very congenial to the constitution of plants in sulphur; when applied externally, it appears, particularly under glass, to enter the whole system. It has been detected in plants by chemists, and there is no doubt but it corrects many diseases in vegetables as well as animals.

So well has this method answered, that in houses where the plants had previously been much affected every summer for ten years, I now scarcely ever expect to see another instance of their appearance. This remedy will not only destroy them, when the plants are literally covered, but if applied in time, entirely prevents their appearing at all; I speak from actual experience on the subject. The houses I have already named, and many others that I have had under my care, have given ample proof of the truth of the assertion; and I now feel so satisfied upon the subject, that with the greatest confidence I can recommend it as a specific to the public.

CULTURE OF THE PASSIFLORA EDULIS.

BY MR. CHARLES SHEPHERD, ALTON GARDENS, STAFFORDSHIRE.

THE *Passiflora edulis* is a plant well worthy of more general cultivation, were it only for its very pretty and engaging, though short-lived flowers; but by bestowing a little pains, and having recourse to *impregnation*, an abundant crop of fruit may be annually obtained. For

persons that have the convenience, a pine stove is the best situation ; plants grown *in pots*, *plunged* in the bark pit, and trained to a wire trellis near the glass, flourish to perfection.

The plant seems to require *straitening in pot room*, in order to throw it into a prolific bearing state, adding to that a copious supply of water in the growing season, which should commence about March, in order to get the fruit ready in good time. The plant succeeds well in a light, rich, loamy soil.

It is easily propagated either by seed or cuttings, the latter being preferable, in order to bring it sooner into a bearing state ; two years' old plants being calculated to bear profusely. The fruit when ripe is about the size of a hen's egg. The colour is of a dark brownish purple. The shell is thick, hard, and useless. The inside resembles the jelly of a gooseberry, excepting the colour being yellow, and the seeds much larger. The flavour seems to have a threefold property combined, and is admirably adapted to the palate of persons in general. For its beauty of appearance in bearing a profusion of handsome fruit, it is well worth cultivating (independent of their usefulness as a dessert fruit), and its singularly handsome flowers—green, crimson, purple, blue, and white being intermingled in each blossom. It grows freely, and even fruits when well trained round a cylinder-shaped wirework trellis, and grown in a pot.

DESIGNING AND PLANTING SHRUBBERIES.

BY A NORTH-COUNTRY LANDSCAPE GARDENER.

IN continuance of my observations on this department of ornamental gardening, I must remark that the shrubbery may be defined to be the link which connects the mansion and the lawn to the flower-garden, or to the other parts of a residence, and is most generally planted either for shelter or shade, although often as a screen to hide disagreeable objects, for which the plants which compose it are better suited than for forest or other trees. The shrubbery is often a matter of utility as well as of ornament, in which case it gives the highest satisfaction when formed for the purpose of shutting out the offices or the kitchen-garden from the view of the house ; for sheltering the latter or the garden, or for connecting the house with the garden and the orchard, the shrubbery becomes useful and interesting.

Sometimes a shrubbery is formed merely for the purpose of growing rare shrubs, and for obtaining agreeable walks ; in this case it is necessary to be at more pains, and to display a greater degree of taste in the laying of it out than in the formation of the useful shrubbery ; in the former case a tasteful arrangement of plants is a matter of less importance than the choice and disposition of kinds that will soonest afford shelter and ultimately become thick screens.

In planting shrubberies for screens, to hide disagreeable objects,

evergreens should form the principal mass, as affording a permanent blind and giving a cheerful appearance even in winter. A few deciduous shrubs of the most showy sorts may, however, be with propriety added, which will give relief to the more sombre appearance of the evergreens, particularly while the former are in flower; but from their nature of annually shedding their leaves, and consequently becoming thin in winter, they are not so well calculated for a permanent blind.

In the disposal of shrubs the tallest should be planted farthest from the walk or front side, and the lower in stature in front, but if an immediate effect be desired it is better to elevate the ground than to plant trees of two great an age; it is also a matter of importance that they may be planted thickly, as it is an easy task to thin them out when required. Little taste has generally been displayed in the formation of shrubberies as to the production of picturesque beauty; they are planted too generally in the form of sloping banks, without the least natural beauty whatever, although in this way they may answer the purpose of blinding out disagreeable objects of little merit when seen even from their best side.

Great attention should be paid in their planting, to give them a somewhat natural appearance, and not that of a surface as regular as if they were clipped with the garden shears. Straight lines should also be avoided as much as possible, and the margin of the shrubbery should be broken with deep indentures or sinuosities, and these should be neatly turfed over and kept mown. The walks which lead through this department should not be to any great distance in a straight line if it can be avoided, neither should they be too much twisted. There is something in a fine gentle sweep or curve so pleasing in a road or walk, that few are insensible of its beauty. The breadth of the walks should be regulated according to the length and scale of the place, as too narrow walks for principal ones have never a good effect; they should scarcely, under any circumstances, be less than five feet wide, and unless for terrace walks of great length should not be more than eight; if the greater breadth, they assume the appearance of a carriage drive, and if narrower, they dwindle in appearance to a mere footpath.

By combining the more distant parts of the grounds with the lawn and house by means of shrubberies, much may be done if executed with judgment. Space does not always give the idea of grandeur, for a limited sphere is often better adapted to the display of ornament and beauty. By good management a small strip of ground may be varied by taking advantage of the ground (if any); or, if it be a level and monotonous spot, art can readily step forward and assist by raising banks, sinking the walks, and planting shrubs in thick masses, chiefly evergreen species, and conducting the walks in the most circuitous manner, so as not to intersect each other but as little as possible; however, care must be taken to give sufficient breadth of walk, and also a margin of grass on the sides, of unequal breadths,

which will naturally assist in adding to the picturesque appearance of the whole. This may also be aided by forming the banks to be planted of unequal heights, which banks in small places need not occupy much surface at their base, so as to admit of as great a breadth of grass margin between them and the walks as possible; in some parts narrow, where it is deemed necessary, either for variety or for the more completely concealing objects which should not be seen; at others broad, and disappearing as it were in natural glades in the distance. This margin of grass, where of sufficient breadth, should be planted with the finer species of ornamental trees and flowering shrubs, singly or in groups of three or five together, which would not be seen to sufficient advantage if planted generally amongst the shrubs.

Some attention to botanical arrangement might be paid in the distribution of the shrubs and ornamental trees, but this must not be carried to the extent likely to infringe upon picturesque beauty; however, such families as *Pinus*, *Deodars*, *Cypress*, *Juniperus*, *Buxus*, *Laurus*, etc., may be grouped with good effect, and if judiciously done will give a bolder effect to the whole than if they were planted promiscuously. Fine specimens of larger growing kinds should be so placed as to give effect and relief to the thicker masses of more humble growth. In the background may be placed a few fruit-bearing trees, which will display their beauties in spring with their blossoms, and in autumn with their fruit; in such situations also should be planted the stronger-growing species of *Crataegus* *Prunus*, etc.

On leaving the mansion, the walks should be conducted through the lawn in a graceful and natural manner to the shrubbery, and should be as much hidden from the principal windows as possible; they should then be continued through the shrubbery, the most circuitous walks leading to interesting objects, so as to relieve the mind and remove the idea that they lead to nothing. Fine specimens of trees, ruins, either natural or artificial water, distant views of villages, churches, woods, cottages, or the like, will always be pleasing. Shorter walks should also be contrived on which to return (as most objects lose their effect when seen over and over), as well as for a more convenient mode of reaching the more distant parts of the grounds. Neat resting-places should be placed in different parts, choosing the situation of some in shady groves, others upon elevated spots commanding the finest views of the grounds or surrounding country. Much taste may be displayed in the formation of such seats, from the polished temple of *Flora*, *Venus*, etc., to the rude roots of trees and misshapen fragments of rocks or rude stone. Arbours of living trees of flexible habits, such as mountain-ash, willow, etc., may be planted and formed in bowers, and covered over with creeping plants, such as *Roses*, *Clematis*, *Ivy*, *Honeysuckle*, etc. Moss-houses of various construction, root-houses, Russian, Swedish, Lapland, Scotch, and Swiss cottages should be disposed of in situations pecu-

liarly adapted for them. Sometimes situations are naturally to be found adapted for the one or the other; in such cases the house should be chosen to suit the situation, and this will always be found to have the happiest effect. Where the situation has to be formed for either, much judgment and taste are required in the arrangement; this is not sufficiently attended to: thus a Russian cottage composed of oak timber-trees, and the adjacent ground planted with laurel and other polished shrubs, natives of southern latitudes, and close-shaven grass lawns, is as preposterous as the chaste Grecian temple in a rocky dingle. The ground should be chosen or arranged so as to persuade the observer that he is really in Russia, and the house should be composed of the same timber-trees used in the formation of cottages in that country, and be of the same form and size. The internal construction and furniture should also come as near to reality as possible. Hermitages and caves are also interesting when proper situations are chosen; in these should be kept a small collection of books calculated for private study, and the furniture of this sequestered retreat should be exactly of that simple and useful nature as would be suitable to a recluse.

CULTIVATING HYACINTHS IN MOSS.

BY MR. WILLIAM BROWN, FLOWER GARDENER AT KNEESWORTH
CASTLE GARDENS.

ACCORDING to promise, I send particulars of the system I have adopted, with very great success, in cultivating these charming flowers.

I procure a quantity of sound bulbs, such as feel weighty and have a clean solid ring at bottom, then number each variety, and make a list of all, as a reference either for the curiosity of ladies and gentlemen, or for the information of the young gardener. Thus prepared, about the 20th of October I get a quantity of the greenest moss; if matted, it must be well separated with the hands; also a number of clean pots of three sizes, namely, large 48's, large 32's, and flat 24's. Place an oyster-shell, or a piece of potsherd, at the bottom of each pot, and fill closely with the prepared moss, to appear like a heaped measure. Take the 48 size, and displace with the finger a little of the moss in the centre, where the bulb is carefully pressed in. As the work proceeds, rub a little white paint on the side of the pot, and with a lead pencil mark the number of the sorts as per list, and one letter signifying the colour, as B for blue. Take the next size, 32, and in like manner place three bulbs at equal distances, and of three distinct colours; next flat 24, in which four or five could be placed, the fifth to be chosen the strongest and best, placed in the middle, a little elevated in the moss, where it gives a pyramidal appearance to the whole. The pots, containing three or four bulbs, should be numbered on the side close to the bulbs, by which they will be distinctly known; the fifth marked with an asterisk, thus *. When all are done

in this order, I give them a plentiful watering, and place them in a three-light box, or in a sheltered corner of the melon-ground, with other bulbs, covered with twelve inches of coal-ashes or old tan, and from thence they are taken to the forcing-house as required, until the middle of March, when the remainder can be removed to a frame or greenhouse, and flowered for the drawing-room. They require plenty of air, and protection from frost; watering to be repeated every third day in fine weather, and once a week in dull seasons. I have placed pans of water under some, but without any beneficial effect. Indeed, after various experiments, I prefer the regular application of water as the season will admit. In the course of three weeks they will push forth spongelets into the moss, where they will flourish *vigorously*. The heat of the rose-house, succession pine-stove, or hotbed frame will bring them into flower in three or four weeks in December, January, and February, and in a much shorter period as the season advances. I always use clean water of the temperature of the house; and where there is not a cistern, vessels filled with water, placed in the house during the night, will be fit for use next morning. When the plants are in flower, they may be placed in a variety of shapes to advantage. They can be placed in fancy baskets, as they are extremely light, and the pots easily concealed by strewing a little fresh moss over the surface,—or in the most ornamental situations, without fear of injuring the furniture; or the pots may be taken away by turning the plant down, and tapping the pot all round with the hand until the moss and roots slip out, when they could be placed in baskets, vases, or in other ornaments, without injuring the roots or breaking the moss. Place some moss round the sides to keep them steady, sprinkle the whole with clean water, and remove them to their allotted places. Having placed the baskets on large tea-trays, water to be given from a fine rose watering-pot twice a week over the flowers to refresh them, and to renew their very sweet odour. I advise, too, when the plants are in flower, to take some out of the pots as directed, and to pick all the moss from the roots, then to pass a thread loosely round the roots, and to slip them into glasses filled with water. When the flower-guards are put on, all are complete for windows, etc. etc.; the glasses should be filled with fresh water every third day. If a table-spoonful of charcoal dust be mixed in the water, or the same quantity of chalk (the carbonate of lime), it will preserve the water from any impurity, as well as contribute to the brightening the colours of the flowers.

TREATMENT OF PELARGONIUMS (GERANIUMS OF SOME) FOR THE FLOWER GARDEN, AND PRESERVING THEM THROUGH WINTER IN A FRAME.

BY A LADY PRACTITIONER IN THE NORTH OF ENGLAND.

THE Pelargonium is one of the greatest ornaments of the flower-

garden ; and when the length of time it continues in flower is considered, the endless variety now cultivated, and the many new and beautiful kinds annually raised from seed, it becomes a subject well worth inquiry how this plant may be raised in the best and cheapest manner possible. During a period of many years, it never occurred to me that Pelargoniums could be preserved during the winter months, in this northern climate, without the assistance of *artificial heat* ; but having now discovered a means of conquering this difficulty, I take the liberty to lay before you a statement of the method I have practised for the last three years with complete success.

It is necessary, in the first place, to be provided with a light garden-frame, which may vary in size according to circumstances, or the number of plants required. The one I use for this purpose at present is $4\frac{1}{2}$ ft. by $2\frac{1}{2}$, 20 inches deep in the back and 18 inches in front : which will contain seventy or eighty plants in small pots. The most common method of raising the plants is by cuttings. At the end of July or early in August, I take the cuttings off at the third joint, and insert them in rich loam, mixed with about one-third of vegetable mould, in the open border ; I then place the frame over them, shading them with a mat for a few days, and giving little or no air for a week. I afterwards increase the quantity of water gradually, giving a little more every time, till they are able to stand the sun without flagging in the leaf. I continue watering them gently until they are well rooted, and then pot them into small pots, in poorish soil, and place them in the open air, to stand during summer, on a good gravel-walk or an open space covered with coal-ashes, to prevent worms from getting into the pots. When the plants begin to grow freely, I pinch off the top shoots, by which means they send out side shoots ; otherwise each plant will invariably send up only one, which looks naked and unsightly ; whereas, a plant low and full of foliage has a handsome appearance, and flowers freely. Some of the more tender and delicate kinds of Pelargoniums may be propagated by cuttings of the roots an inch long. Plant these round the side of a pot an inch apart, leaving the eighth of an inch of soil above them. Set them in the frame, and when they have pushed a little, plant them in separate pots, giving air and water regularly : when they have grown a few inches, remove them into the open air, and treat them in the same manner as plants raised from cuttings. Seeds may be ripened well in the open air, from plants kept in pots ; but those transplanted into the borders (growing very vigorously) seldom produce good seed. Sow the seed in March, in soil similar to that recommended for the cuttings, adding a little sand to it ; place the pots in the frame a few inches from the glass, and, when about two inches high, plant them in separate pots ; let them remain in the frame till well rooted, and then remove them into the open air to remain during summer. Plants thus raised will flower well the second year.

Plants kept long in pots grow naked and stunted, and require to

be headed down to within a few inches of the pot; this is done at the period stated for putting off the cuttings; afterwards set them in the shade, and give no water for a week before and one after the operation; this prevents the plants from bleeding, which often destroys them altogether. About the latter end of October, or on the first appearance of frost, the plants raised from seed, from cuttings, or from roots, and kept in small pots during summer, should be placed in the frame, with a few inches of coal-ashes below the pots, to prevent the plants from suffering from damp during winter. Shut up the frames closely at night, and give air freely during the day. As the winter advances, give water sparingly, and pick off all decayed leaves as they appear. Cover all round the frame with about two feet of soil pressed close, and nearly level with the glass, sloping a little to carry off the wet. When the frost sets in, cover with mats at night; and when the weather is very severe, use a straw mat, and over all a wooden shutter, a little larger than the frame. Give air every day when mild, and in severe weather uncover the frame when the sun's rays fall upon it, taking care to cover when the sun leaves it in the evening. As the spring advances, give air more freely, by sliding down the sash altogether in the daytime, to prepare the plants for being turned out of the pots, and transplanted into the flower-garden, which may be done about the beginning of May. By this method a constant supply may be kept up at a very moderate expense.

NOTES ON NEW AND SELECT PLANTS.

26. *ÆSCHYNANTHUS FULGENS* (*Flame-coloured*). Nat. Ord. *Cyrtandraceæ*. This species is a native of Savoy; first discovered by M. Gomez. Subsequently, Mr. Thomas Lobb collected it, at Moulmein, and sent plants to Messrs. Veitch. It blooms very freely, and few plants can exceed it in beauty, especially if suspended in the stove in a wire or small trellis basket. The flowers are of a bright crimson colour. (*Fig. in Bot. Mag.* 4891)

27. *WEIGELA AMABILIS* (the *Wrinkle-leaved*). Nat. Ord. *Caprifoliaceæ*. It is a shrubby plant, more robust in habit than the *Weigela rosa*, and equally hardy. The leaves are much more prominently *netted* with the veins than those of *Weigela rosa*. The flowers, too, are of a deeper rose colour, and the lobes of the corolla are *wavy* and *notched* at the edge. It is a profuse bloomer, and well deserving a place against a trellis, wall, or open ground. (*Fig. in Bot. Mag.* 4893.)

28. *CLIVIA GARDENI* (*Major Garden's Clivia*). Nat. Ord. *Amaryllidaceæ*. Major Garden discovered this pretty species in the Natal Colony, and also sent it to the Royal Gardens at Kew. The flowers are produced in *umbels*, about fourteen drooping flowers in each. Each blossom is slightly curved, two inches long, funnel-tube-shaped, of an orange-red colour below, yellow above, and green at the end. It is a charming plant for the greenhouse, blooms in the

winter months, and continues for several weeks. (*Fig. in Bot. Mag.* 4895.)

30. *AGAVE AMERICANA* IN DEVONSHIRE.—The first American Aloe that ever grew and flowered in the open air in Britain was in the garden of the late James Yates, at Salcombe, Devonshire, about the year 1814. We thought it (Sir W. J. Hooker) a privilege to see the plant after it had done flowering, with the withered scape, attesting the fact, still attached to it. That plant was stated to have been only twelve years old. Its locality was upon the lawn in front of Mr. Yates's villa, and, as far as we can recollect, with only the road intervening between it and the sea-beach.

Since that period Salcombe has increased in population, in houses and villas, and, no doubt, in Agaves; for our valued friend, John Luscombe, Esq., of Combe Royal, in the same neighbourhood, himself a great lover of plants, has sent us photographed portraits of no less than four different Agaves, at this time (November, 1855) in full flower, in three different localities, at Salcombe. *One* is on the property of Mrs. Prideaux, Cliff House, and is represented within a wall, on a small promontory, apparently jutting into the sea. It is twenty-six years old, and has attained a height of twenty-six feet. A *second* and *third* are represented upon the side of a rough hill, full of wild plants, and seemingly not in any garden or enclosure; these are, respectively, twenty-six years old and twenty-five feet high, and thirty years old and twenty-eight feet high. Other flowerless Agaves growing close by, and the broad sea visible over the edge of the hill, give the scene the appearance of a coast of the Mediterranean about Nice. These are on the property of Mr. Strong. The *fourth* is in the grounds at "The Molt," the property of Lord Courtenay; the height not given, but judging from the size of the tasteful residence adjacent, and the neighbouring trees, altogether forming a most charming subtropical landscape, it must be the tallest of the four. Our greenhouse Agaves, as is well known, flower so rarely as to have given rise to the saying, and which is generally believed, that the American Aloe is a plant which blossoms only once in a hundred years; here, again, we suspect horticulture is at fault. (*Hooker's Journal of Botany.*)

The following is a list of eleven rare and hitherto undescribed Australian Plants, chiefly collected in the colony of Victoria, by Dr. Ferdinand Mueller, Government Botanist for that colony.

31. *RANUNCULUS MILLANI*.—In gravelly places, on most of the summits of the Australian Alps irrigated by the melting snow. A neat little plant, having white flowers, which assume a slight yellow tinge when drying.

32. *RANUNCULUS ANEMONEUS*.—On springs at the summit of the Munyang Mountains. This charming and interesting species forms (after *Grevillea Victoriae*) the greatest ornament to the snowy mountains of Continental Australia. It differs from the similarly showy species of New Zealand in its *white flowers*, and approaches rather to the Alpine type, as *R. aconitifolius*.

83. *MYOSURUS AUSTRALIS*.—On moist places, or on open plains where rain-water lodges. Apparently not different from *Myosurus minimus*.

84. *CALTHA INTROLOBA*.—A dwarf species, on gravelly places on the Australian Alps irrigated during summer by the melting snow. It is the only known New Holland species. Distinguished from *Caltha Novæ-Zelandiæ* principally by its *white* flowers.

85. *SISYMBRIUM TRISECTUM*.—A suffruticose, smooth, erect plant, found in the desert, on the Murray River.

86. *CAPESELLA (Hutchinsia) ANTIPODA*.—It belongs to the Natural Order of *Cruciales*. An annual, having white flowers. Found in the Black Forest.

87. *DROSERA ANGUSTIFOLIA*.—The stem is foliate, leaves long and narrow. The flowers are borne in racemes, three to ten blossoms in each, of a whitish colour. On moist gravelly margins of the lakes on Murray River.

88. *POLYGALA VERONICEA*.—A somewhat shrubby plant, thinly branching. The flowers are borne in terminal or lateral *racemes*. In grassy or gravelly places.

89. *COMESPERMA POLYGALOIDES*. Nat. Ord. *Polygalaceæ*. Leaves narrow, lance-shaped; flowers in racemes, purple. In barren plains.

40. *MARIANTHUS BIGNONIACEUS*. Nat. Ord. *Pittosporaceæ*. The branches are climbing; leaves heart-shaped; flowers pendulous, somewhat bell-shaped, an orange-yellow colour. A remarkably handsome plant, growing in clefts of rocks, on shady rivulets, by cataracts, etc.

41. *HOWITTIA TRILOCULARIS*.—A flexile *shrub*, grows twenty feet high; belongs to the *Malvaceæ*; the flowers are of a purple colour; very pretty, and merits a place in every shrubbery.

42. *TYDÆA AMABILIS*.—The type of the genus *Tydeæ* is the *Achimenes picta*. The very neat and handsome species *T. amabilis* was discovered by the celebrated botanist M. Triana, in New Granada, in the province of Popayan. The leaves are of a velvety hue, light green marbled with dark. The tube of each blossom is about one inch and a half long. The outside is white streaked with a beautiful rosy carmine; the inside white marbled with rosy carmine. The front of the blossom (limb) is an inch across, of a bright rose, shaded with brilliant carmine. It blooms freely, and is exceedingly neat and handsome. (*Fig. in Flore des Serres*, 1070.) M. Linden, of Brussels, has plants for sale, and it merits a place in every collection. It blooms admirably, too, in the winter, and with suitable treatment may be had in flower all the year, similar to *Achimenes picta*.

43. *SARRACENIA DRUMMONDII (Side-saddle Flower)*.—This handsome species was discovered a few years ago by Dr. Chapman, an American botanist, near to Appalachicola, in Florida. It flourishes in great beauty at Chatsworth; and plants may be procured at a cheap rate of M. Linden, of Brussels, or M. Van Houtte, of Ghent. The leaves are singularly handsome, of an upright *pitcher shape*;

hollow, about ten inches long, bright green, with one-third of each leaf (the terminating portion) beautifully marbled with numerous silvery, metallic-like patches, and the margin of the pitcher a rosy crimson colour. The flowers are of a rich crimson, tinged with purple and yellow. Each blossom is composed of five petals and five large calyx leaves, also coloured, drooping, three inches long and three inches across; very beautiful. It flourishes in its native country on the banks of rivers, and in our own country and on the Continent it flourishes when grown along with the *Victoria regia*, and similar boggy water plants. (*Fig. in Flore des Serres*, 1071, 1072.)

44. *SARRACENIA RUBRA*.—It forms a bushy plant, about eight inches high; the pitchers are *narrow*, half an inch across, green, with a tinge of red at the termination. The flowers are of a rich purple-red, drooping, each blossom about an inch and a half across. (*Fig. in Flore des Serres*, 1074.)

45. *SARRACENIA PURPUREA*.—The pitchers are short, four to six inches in length, very wide, two and a half to three inches across, green, netted with brown at the upper part. The flowers are of reddish-purple petals, wide apart, each blossom two inches across. This species and *S. rubra* are natives of North America; nearly hardy.

46. *RHODODENDRON*, PRINCE CAMILLE DE ROHAN.—This very handsome variety was raised from seed obtained from *R. maximum*, impregnated by a variety of *R. arboreum* or *R. Caucasicum*. The leaves are of medium size. The flowers in fine compact heads and each blossom two and a half inches across, of a silvery rose colour, very distinctly edged with bright carmine. The three upper segments are beautifully spotted with carmine. The edge of the blossom is numerously indented. It is a very charming variety, and we are informed is quite hardy (*Fig. in Flore des Serres*, 1073.)

47. *PSAMMISIA SCLEBOPHYLLA*.—This beautiful shrubby plant belongs to the Natural Order *Ericaceæ Vaccinææ* (Bilberry), and was first discovered by M. Linden, in woods, in the province of Merida, at an elevation of 7000 to 8000 feet. It bloomed, for the first time in Europe, in the greenhouse at the establishment of M. Linden at Brussels, in 1852. The flowers are tube-shaped, one inch and a half long, of a clear brilliant red, with a very distinct yellow tip. It is a charming, free-blooming shrub, well deserving a place in every greenhouse pit-frame. It flourishes in the open ground, but in cold situations it requires protection in winter.

48. *BEGONIA MAGNIFICA*.—It was discovered by M. Linden, in Cundinamarca, in New Granada, growing at an elevation of about 8000 feet, in cold and moist situations. M. de Warscewicz also found it in New Granada, and describes it as being the most beautiful and ornamental flowering plant he had seen; it was of extraordinary magnificence. It forms a *bushy* plant; the leaves are thick, the upper side is velvety and handsomely veined with silvery white, reflecting a metallic lustre. The nerves at the under side of the leaves are of a

red-brown colour. The flowers are of a brilliant scarlet, each being two inches across; they are borne in numerous heads, each branchlet having six to eight blossoms. M. Linden has plants for sale, and its highly ornamental appearance and long period of blooming entitle it to a place in every greenhouse or stove.

49. *LOCHERIA MAGNIFICA* (*Achimeneæ*). This *very handsome* flowering plant was introduced by M. Triana, from New Granada, to M. Linden's establishment at Brussels, where it has recently bloomed. The *Locheria* has been founded upon *Achimenes pedunculata* as the type. This beautiful species is a free bloomer, and each flower has a wide tube, about two inches long, of a brilliant crimson colour. The limb (front of the flower) is nearly two inches across, a brilliant crimson colour, spotted and striped with dark violet-purple, and the throat is white. It merits a place in every stove or warm greenhouse. Plants may be had of M. Linden.

50. *DIDYMOPANAX SPLENDIDUM* (Syn. *Aralia splendida*). This very elegant *Aralia* was found in the temperate regions of New Granada. It forms a strikingly handsome tree, from thirty to fifty feet high. The leaves are composed of seven to nine folioles, of an oval lanceolate form, and each of them are two feet long, so that the leaf is four feet broad. The upper side of the leaves is a satiny green, and the under side a silvery white. It is a magnificent tree, and merits a place wherever superb ornamental ones can be introduced, in either park or pleasure ground. M. Linden has plants on sale.

QUESTIONS, ANSWERS, AND REMARKS.

CUTTING IN THE HEAD OF AN OLD STANDARD ROSE.—I have recently entered into a new residence, and in the garden and grounds are a considerable number of *budded Standard Roses*. They have not been pruned for some years; the heads are large, and contain a vast number of branches and shoots; all the inside is naked. I wish some reader who is practically acquainted with the mode of treatment of such roses in order to obtain new heads, would supply me with particulars. In cutting back the naked head, where must I prune to—that is, how near the origin of the shoots—and am I to cut back *all* the shoots at first, or only a portion now, and the others another season? I have not had any practical knowledge of the treatment of such roses, and those I have appear to be excellent sorts, which I am desirous of retaining. They have grown vigorously, which confirms the fact of the soil suiting them.—*Juvenis*.

ON *IXIAS*, *SPARAXISES*, ETC.—One of your readers will be much gratified by an early reply to the following queries (she was much pleased with Mr. Saunders's remarks on bulbous plants, given in last number):—1. How can the bulbs of *Ixia* and *Sparaxis* be managed in a greenhouse where artificial heat is not given them, except by means of a hotbed, and that only for a very limited time? I find them increase rapidly by offsets but they *never* open their flowers well, and the leaves generally begin to turn yellow before the flower appears. 2. What treatment should be pursued with regard to bulbs newly imported from Brazil?—*Albina*.

ON DESTROYING WOODLICE.—How am I to destroy, most effectually and readily, woodlice, with which I am pestered in my greenhouse and frames to an enormous degree?—*Alpha*. [Cold boiled potatoes put into small garden pots, and covered with a little loose moss, and placed where most likely to be found by the insects, is the best method we have tried. The insects are fond of the potato, and remain concealed under the

moss. The pots require examining early in the morning, and the insects destroyed; when requisite, replace with fresh potatoes. We have used ingredients, poisonous, which, mixed up with other things, effectually kill the insects partaking of it; but as danger attends such a mode of destruction, we do not recommend its adoption.—*Editor.*]

ON PRUNING ROSES.—As an *Amateur Florist*, and devoted to the Rose above all other beauties of the Garden, it would do me a most especial benefit and favour, by giving a page or two in your *Cabinet* to the art of *pruning Rose Trees*, now become almost a “craft or mystery,” by reason of the numerous plants of recent introduction. I have nearly killed some valuable sorts by pruning after the old fashion. Mr. Rivers has skimmed the subject in his “Guide,” but much more is wanted; and let me entreat you, or some reader who is practically acquainted with it, before the spring, to comply with my reasonable request.

ON A ROCKERY.—A constant reader of the *Floricultural Cabinet* will feel much obliged if any of your correspondents will give her hints for the formation of a rockery in a situation where no advantages can be derived from the nature of the ground, being merely a flat lawn; also what plants are best suited for growing in such a place, taking into consideration the northern climate, at the same time the aspect is south-west, and well sheltered by wood. Plenty of peat soil and white spar-stone can be obtained. An answer in an early number will greatly oblige.—*Georgiana Elizabeth.*

HIBISCUS MANIHOT.—We have, in a small forcing-house, a plant of *Hibiscus Manihot*, which appears very healthy, and has just (November 20th) produced two very fine flower-buds, that grew very nicely, but both have fallen off before expanding. If some reader hereof, who knows how to manage the plant so as to bloom it successfully will oblige me with the method of treatment so that I can ensure its blooming, it will greatly oblige.—*Florilla.*

CULTIVATION OF BRITISH FERNS.—As there is just now a *perfect* mania for Ferns, I am certain it would be of much service, if there were particulars of their treatment given in an early number of the *Floricultural Cabinet*. No doubt some of the subscribers have a practical acquaintance with the management of many kinds, and I respectfully solicit from them a few remarks calculated to assist a *Floriculturist*. [We feel assured the request will gladly be complied with.—*Editor.*]

ON BANISHING ANTS.—I tried the plan of dusting common flour sulphur over ants with a view to kill them, but in this have failed; it, however, had the effect wholly to banish them, for, although I turned over the soil in the melon bed, and examined the neighbouring places, not one ant could be found. I have tried it in several situations, and it invariably banishes them. It equally affects black and red ants.—*P. M.*

CARNATIONS AND PICOTÉES.—*Soil for Carnations*: one barrow of well-decayed manure to four barrows of good turfy loam. *Soil for Picotées*: one barrow of well-decayed manure to three barrows of good turfy loam. The soil, as will be seen, will be richer for Picotées than Carnations, as the latter flower has a tendency to run in colour. In November, mix the soil in a dry state, and fully expose it to the action of the air. During winter, remove the frosted surface at every opportunity, and place it in a heap by itself, until the whole is frosted. Keep it dry from snow and heavy rains, and turn it over often, until required for use. We bloom our plants in eleven-inch pots, each pot accommodating from three to four very strong plants. Weaker plants should be grown in eight-inch pots, two or three plants in a pot. Begin potting the first week in March, using from two to three inches of broken crocks and clinkers as drainage. Chop the soil well, *sifting only a portion, for about three inches of soil at the top* using the coarse portion of the siftings as a thin layer over the crocks, to assist drainage. *Pot very firm indeed.* After potting, expose them fully to the weather, placing the pots on two parallel slips of wood, so as to ensure good drainage, and prevent the ingress of worms. Water moderately after potting. We have been induced to offer these remarks on the culture of Picotées and Carnations, in consequence of having received so many communications lately on the subject, and believing also that our plan of culture would be as acceptable to our readers as any. We are anxious to impress on the minds of readers, that Carnations, Picotées, and Pinks are thoroughly hardy plants,

and will bear any amount of frost, under proper treatment,—by which we mean, *being kept dry in a dry frame, well aired, and moderately watered in sunny open weather*. In short, as a general rule, keep dry and air well. We wintered several thousand pairs in dry frames, without any covering whatever, with the soil frozen hard for weeks, and were rewarded by luxuriant health and vigour. With many, the Carnation is treated too *tenderly*, by keeping them in close frames, watering too freely, and covering too much. It is also a great fault to pot off in *large pots* for wintering. We use none larger than large sixty-sized pots for a pair of strong layers.

CAMELLIAS.—Any person possessing a sufficient stock of these favourite plants, and the necessary accommodation, may have a supply of blossoms from August to May. To secure this, it is necessary to place a portion of the plants in a growing temperature of sixty degrees or sixty-five degrees, in January, or early in February, and others at intervals of a month or six weeks, leaving the latest portion to make wood and set flower-buds in a cool-house; it may, however, be necessary to remove the late plants to a higher temperature, to induce them to form flower-buds; but, except in the case of very vigorous young plants, this will hardly be required. The Camellia is somewhat easily injured by the direct rays of the sun while in a growing state; it enjoys a shady situation, under Vines, for instance. The plants should be freely supplied with weak manure-water at all seasons, and especially while growing, and they will be benefited by frequent syringings. As soon as they have made their wood and formed their flower-buds, they must be removed to a cooler situation, and, as soon as the weather will permit, may be placed in a sheltered shady place out of doors. The plants which were placed in heat in January or February will probably be in flower in August; but if not, they may be removed to a warmer atmosphere, to encourage them to develop their buds.

THE TABAN (*Isonanda Gutta*, Hooker), formerly so plentiful in Singapore, has long since been extinct. It must ever be an object of regret, that on the first introduction of the Taban Gum its proper name was not promulgated. Now almost everybody in Europe and America speaks of Gutta Percha, when, in fact, all the time they mean the Gutta Taban. The exportation of the indigenous Gutta Taban, from Singapore, commenced in 1844, but as early as 1847 all, or at least most of the trees had been exterminated. That at present shipped from the place is brought in coasting vessels from the different ports of Borneo, Sumatra, the Malayan Peninsula, and Jahore Archipelago. The difference existing in its appearance and property is owing to the intermixture of Gutta Percha, Jelctong, Gegrek, Litchu, and other inferior Guttas, in order to increase the weight. Though far from extinct in the Indian Archipelago, Gutta Taban will every year be more difficult to obtain, as the coast region is pretty well cleared, and a long transport from the interior must, by augmenting the labour, increase the price of the article. The quantity of solid Gutta obtained from each tree varies from five to twenty catties, so that taking the average of ten catties, which is a tolerably liberal one, it will require the destruction of ten trees to produce one picul. Now the quantity exported from Singapore to Europe, from January, 1845, to the middle of 1847, amounted to 6918 piculs, to obtain which 69,180 trees must have been sacrificed. How much better it would be to adopt the method of tapping the tree, practised by the Burmese in obtaining the Caoutchouc, than to continue the present process of extermination.—*Senex*.

MIMOSA PROSTRATA.—A very pretty trailing plant, with neat foliage, and which blooms profusely; the flowers are of a delicate pink colour. It is admirably adapted for training up or round a wire trellis, pillar, etc. It grows very freely, either in the greenhouse or open air; and deserves a place in either. I bloom it most beautifully, and have a quantity of plants.—*A Country Curate*.

REDUCING THE GENTIANELLA TO OBEDIENCE.—Being but a poor gardener myself, I never hoped to be able to give even a hint on any operations in that science; but the request from a correspondent "P. B.," in this week's *Cottage Gardener*, for information in growing the *Blue Gentianella*, and your (shall I call it craven?) advice to him to give it up, induces me to take up my pen and give you a word or two on the subject. An old gardener in this neighbourhood grows it to perfection, and in the season brings large quantities of it to market. My father-in-law purchased the plant several times, but, like yourself and your correspondent, could not succeed in blooming it the second

year. He then asked the man how he treated it, and by adopting his method has succeeded very well. The soil is *solely* the scrapings from a Macadamised road; the plant is planted in a patch of it, if planted singly; or beds or borders made, if wanted, of the scrapings, and before the plant is set. The soil must be made as hard as possible, and then the plant put in with a trowel, and the soil pressed round it as hard as can be done. The gardener said, *roll* it after planting; but it will grow without such cruelty. I may say that our roads are made with broken *gravel* stones. Some roads are made with granite; but I do not think that would make much difference. In surface-dressing the border, the soil round the *Gentianella* must be stirred as little as possible. I think the man referred to never disturbs his bed at all.—A. M., *Cottage Gardener*.

HOME-MADE FRENCH AND GERMAN ASTER-SEED.—I am a great admirer of these lovely flowers. For many years I procured a fresh supply of seed at the London seed shops, but scarcely ever succeeded in obtaining a packet that did not contain a mixture. Three years ago I began to provide my own seed, and as soon as I perceived a plant blooming that did not belong to the kind expected, I removed it, and by this means had the bed of only one sort. My beds designed to supply me with true seed of Asters, too, were in remote places from each other, in order to avoid impregnation by bees. By this attention I now have seed true to kind, from year to year. In the flower-garden where patches of Asters, or a small bed of several kinds are required, of course I do not save such seed for future correctness of sort. I must observe, too, that the flowers produced from the plants of my own saved seed are much larger than those from the foreign imported seed.—*Clericus, Berkshire*.

NEW AND SUPERB CINERARIAS, shown in 1855, and to be sent out early this spring.—*Admiral Lyons*, Henderson; ground white, tipped with violet purple, and a dark disc (centre); large and superb form. *Beauty of Dulwich*, Smith; ground rosy purple, with a pure white circle round the dark disc; large flower, dwarf habit, profuse bloomer. *Brilliant*, Lidgard; white ground, with a broad margin of light blue, and a deep purple disc; large and fine form. *Cleopatra*, Smith; ground a rosy crimson, and a clear white circle round the dark disc; very showy. *Duchess of Wellington*, Turner; white ground, with a broad rosy lilac margin, and buff disc; fine form. *Emperor of the French*, Turner; rosy crimson ground, with a broad white circle round the dark brown disc; large flower, and good shape. *Lord Cardigan*, white ground, with a broad edging of violet-purple; flower large and showy. *Magnum Bonum*, Turner; ground purple-crimson, with a pure white circle round a very dark disc; flower large and showy. *Model*, Smith; ground rosy lilac, with a white circle round the large dark brown disc; good form. *Monarch*; ground rich plum colour, with a rosy crimson disc; fine form. *Purple Standard*, Turner; ground good purple, with a white circle round a dark disc; good form. *Queen of May*, Lidgard; white ground, with a bright blue margin, and buff disc; good form. *Rose of England*, Bouisses; light ground, with a broad rosy purple margin, and a dark purple disc; very fine form. *Wonder*, Smith; ground rosy crimson shaded with purple, and a white circle round a very dark disc; good form.

The following are the *best twelve kinds* previously sent out, and deserve a place in every greenhouse. *Admiral Dundas*; white edged with plum colour; fine form, and showy. *Advancer*; pure white, edged with rich blue, and a buff disc; very showy. *Constellation*; pure white, with a deep blue margin, and creamy disc; fine form. *Erquisite*; pure white, with a rich crimson margin, and a black disc; fine form. *Lord Stamford*; pure white ground, with a porcelain blue margin, and light disc; fine form, and showy. *Mrs. Foster*; white ground with lilac margin, and white disc; handsome. *Mrs. Segrave*; rich deep blue, with a white disc; fine form and showy. *Rosalind*; pure white ground with a purple margin, and grey disc; superb form. *Novelty*; rich damson colour, with a white disc; remarkably showy. *Picturata*; pure white ground, with a broad margin of rosy purple, and a lavender-coloured disc; superb and showy. *Prince Arthur*; bright scarlet-crimson, fine form, large flower, very showy. *Octavia*; rich azure blue, with a white disc; very pretty, and of dwarf habit. *Mrs. Gerald Leigh*; clear white, with a purple margin, and a blue disc; very handsome. *Mrs. Rogers*; pure white ground with a plum-coloured margin, and dark disc; very fine. *Fascination*; very rich deep blue, with a white circle, round a dark disc.



1. CUPHEA EMINENS.
2. GONDICALYX PULCHER.

The Floricultural Cabinet.

MARCH, 1856.

ILLUSTRATION.

I. CUPHEA EMINENS.

THIS very handsome and showy plant is a native of the temperate regions of Mexico, where it was discovered by M. Ghiesbreght, who forwarded seeds of it to J. Linden, Esq., Director of the Royal Zoological Gardens at Brussels, in whose establishment plants have bloomed. It proves to be far the handsomest of the pretty genus. Most of our readers know and admire the lovely *Cuphea platycentra* and *C. strigulosa*; but this new species is much more ornamental, either in the greenhouse or when grown as a summer *bedding plant*. It is a free-growing half-shrubby plant, branching numerously, and blooming in profusion. It forms a neat, bushy, elegant plant, one foot to half a yard high, according to the richness of the soil in which it is grown. It is, however, readily kept to any desirable size, easy of cultivation, and is propagated readily. It merits a place in every greenhouse, dwelling-room window, and flower garden. M. Linden has plants on sale, and, through his London agent, any number can be obtained.

II. GONOCALYX PULCHER. *Nat. Ord. VACCINEÆ.*

THIS very charming, *bushy*, low shrub was discovered by M. Schlim in the province of Oaxaca, in Mexico, growing at an elevation of from five to seven thousand feet. It grows freely and blooms in profusion, in a cool greenhouse or dry pit-frame. The very neat foliage with which the plant is adorned, in contrast with its numerous lovely blossoms, render it especially ornamental; the *young leaves* being tinged, too, with rosy purple adds to its pretty appearance. M. Linden has plants on sale. It is well deserving a place in every greenhouse, and as it is very probable that it will bloom freely and for a long season in the open ground, in summer, it is highly entitled to a place in every one.

MANAGEMENT OF TEN-WEEK AND OTHER KINDS OF STOCKS.

BY MR. WILLIAM JONES, OF BIRMINGHAM.

HAVING cultivated, for my own amusement, with great success, for several years past, the Ten-week Stock (*i. e.* the scarlet, the purple, and the white, as well as the German varieties, also the *Giant Stock* and its affinities), I am induced to inform you of the method I pursue, in order to have a fine bloom of them *in the spring*. The last week in October, I remove the frame from a cucumber bed, situated in a full south aspect, raking all the old mould from the surface, until I come to the old dung. I then replace the frame, and spread on the top of the dung about three inches thick of good loamy soil, raking it even, on which I sow the seed pretty thick (of course keeping each colour separate by a mark). I give it a good sprinkling of water, and shut the lights down close until the plants appear; after which I open the frame every day through the winter, except in wet or frosty weather; but from the time of sowing until the middle of March, I never let them have a drop of water; in that particular depends their flourishing through the winter, for if they once get wet, they are sure to shank off. By exposing them to the cold I make them hardy, so that I can plant them about the middle of March, and I always prefer doing it when the weather is dry; and though at that season the wind is generally harsh and frosty, I do not find it affects the plants. By planting in dry weather, the plants get hold of the earth before the worms can drag them out. In order to have some extra strong plants, and as early in bloom as possible, I adopt the following mode of treatment.

I place a three-light frame in a sheltered situation, and have the soil beat as firm as possible; upon it I place *thin turf*, from a good pasture ground, laying the grass side downwards. I then spread over the whole about two inches deep of well-enriched loamy soil, and as soon as the young seedling plants are fit to prick out, I have some of each sort done, putting them in at about four inches apart. Through winter they are treated as stated above. At the middle of March, I transplant these vigorous plants into the beds or borders. In doing this I cut through the compost and turf, so that each plant has an entire ball of four inches square, by which means they do not receive any check in removal, but on the contrary, the roots being cut at the sides of the ball, causes the production of more lateral ones, and promotes their vigour, and a proportionate increase of flowers. Of course, this causes a little more attention, but amply repays for it. I prefer planting each sort in a bed by themselves for blooming, as I fancy they make a much finer show than when planted about the borders. These plants begin to bloom in April in some seasons, but in all cases the beginning of May, and continue to

the end of August, or later ; then the *spring* sown succeed them, and bloom to the end of October.

CULTURE OF PORTULACCAS IN THE OPEN BED OR BORDER.

BY A NOBLEMAN'S FLOWER GARDENER IN STAFFORDSHIRE.

TREATED as half-hardy annuals, the seeds of *Portulacca* should be sown in the beginning of March, on a gentle hotbed, protected by common mats or thick canvas thrown over a temporary wooden framing; or they can be sown in pots, and these plunged in fermented material in any hotbed that happens to be in use. When the young plants appear, they should be potted in small pots, and kept for a time in a warm frame or greenhouse, and afterwards transferred to an open frame, which should be covered at nights in cold weather, till they are required for transplanting. About the middle of May they should be transferred to the open ground; but a *dry sheltered* border or *rockery* must be prepared for them, and the soil should not be of a wet or retentive nature. They will thus flower during sunshine (for the flowers do not expand except under the direct rays of the sun) for a lengthened time, and seldom cease before the arrival of frost. They are exceedingly beautiful, blooming very freely, from six inches to a foot high, and in a well-filled bed or good patch are highly ornamental. I possess the following kinds:—Double white with pink eye, double rose, double crimson, double yellow with red eye. Each blossom of the above is an inch and a half across, good double. Of the single flowered I have white striped, purple, yellow, scarlet, rose, and crimson. A bed well mixed, or a patch, are very interesting and pretty. Persons desirous of purchasing the above may be supplied by the general seedsmen, the *colours* being given.

MANAGEMENT OF THE LARGE-FLOWERED SHOW PELARGONIUMS.

BY MR. JAMES BARNES, AN OLD AND SUCCESSFUL EXHIBITOR.

HAVING been several times solicited to give *particulars* of my method of managing the above class of plants, I have much pleasure in forwarding a short detail thereof.

The cuttings are placed in an open border, about the middle of July, and the situation selected is one fully exposed to the mid-day sun. In about six weeks the cuttings are rooted, and are then potted into sixty-sized pots. The pots are placed in a shady situation,

on boards or slates, and in three weeks they are removed to a more exposed and airy situation, when the wood becomes hard. They remain here till nearly the end of September, when they are taken into the house for the winter. At this time the plants are *stopped* at the third or fourth joint, and they are at the same time *shifted* into forty-eight-sized pots. The soil is a turfy loam and sand. After this shifting but little air is given for about eight or ten days; but after this time as much air is again allowed as the state of the weather will admit, till about the beginning of December, when the pots will be well filled with roots, and require to be again removed into thirty-two-sized pots. Bone-dust is added, but with caution; and never near the *surface* of the soil, because it is of too drying a nature. The plants are again stopped, and the temperature of the house is maintained at about 45°; at the end of ten days it is allowed to fall to 42° or 40°. The flues are damped two or three times every night, to keep the air of the house moist, allowing top air when the weather is favourable. About the middle of February, the plants intended for large specimens are again shifted into forty-two-sized pots; and the vigorous-sized kinds require a size larger. At this time each shoot is tied separately to a proper stake. Fires are discontinued about the beginning of April, and the plants are syringed overhead three times a week, and the house closed for the night. This treatment is continued for about a month, the house being damped every evening, and the top sashes opened the first thing in the morning, and as much air allowed during the day as can be given with safety. When the plants show bloom they are freely watered, and shaded with canvas. At the time of housing the plants, the dead leaves are carefully removed, and when the green fly makes its appearance a fumigation of tobacco is used, care being taken that the plants are in a dry state at the time; they must be well watered in a day or two afterwards. When the flowering season is over, the plants are removed to an exposed situation for a fortnight, till the wood is hard, when they are cut down. Those plants intended as specimens the second year after heading down are placed in a sheltered situation, where little water is given, and when the shoots are an inch long, they are shaken out of the pots and planted in others two sizes smaller; by this treatment they are kept more healthy during winter. When thus potted, they are placed on a stage in a shady situation, and removed to the house "at the proper time," and treated during the winter as already described. The plants intended for exhibition are occasionally watered with liquid manure; syringing overhead is discontinued. Gauze blinds are used, by which bees are prevented entering the house to injure the bloom; these plants are never allowed to flag by exposure to the sun, or for want of water. It is especially recommended to commence the training of the plants at an early period of their growth, while the shoots are young and pliable. By early training, the shoots acquire the desired form, and fewer stakes are therefore

required. The flowers are arranged so that there is an equal distribution of blooms over the head of the plant; to effect this, small willow twigs are used. "Practice alone can teach the art of preparing flowers for exhibition. The less *art* is used the better, and the means should always be kept out of sight." The compost I use for my Pelargoniums is the following:—Two barrowfuls of good maiden loam, with the turf, one ditto well-rotted cow-dung, three years old. This requires to be frequently well turned over in winter, to destroy the worms and insects. One peck of silver sand, one ditto of bone-dust; for the winter repotting, a little more sand is added.

PROPAGATING PINKS FROM SLIPS.

BY MR. MORRIS, AN AMATEUR FLORIST.

I HAVE long grown my favourite flower, the Pink, and increased it annually by pipings, but the process has not always succeeded to my expectation. Last year I was instructed to raise them by slips, which, when slipped off, had the ragged portion, where torn, cut quite smooth, and in that state were fit for pricking off, avoiding cutting off the ends of the leaves, as is done in preparing pipings. In July, 1854, I had a portion of a south-aspected border prepared, by mixing with it one-half of fresh loam, digging it fine, and beating it as *firm as possible*, after which I watered it, and inserted with my finger the slips, taking care that the lower end of the slip is bent flat upon the surface of the soil, and being pressed in that position into it, it turns round the point of the finger; in that form the soil is *firmly* closed round it, after which a good watering closes the process. I had a wire screen (wooden laths, etc., would equally serve), supported by a brick laid flat at each corner, laid over the plantation, and upon it put as many rhubarb leaves as covered it entire, for the purpose of shade. These not only protected from the hot rays of the sun, but at the same time kept a moist atmosphere underneath. When the leaves had become very shrivelled, I replaced with others. Occasionally a sprinkling of water was given when changing the leaves. The covering was given up as soon as I discovered they would sustain the sun without flagging. By this mode of treatment I find it not only to do without the expense of glass cover, but my plants are much more vigorous, being robust, and this summer have bloomed much finer than my other plants. The success, too, in the process more than exceeded my expectations. Out of five hundred slips inserted, only four failed.

Last year I put in the slips rather earlier (June 18), and they appeared admirably well by the end of August, the time I required them to plant my bed. I think it is better to be thus early, as the plants get stronger by the early part of September, the time of planting for a fine bloom the following season.

REMARKS ON THE ROSE DEVONIENSIS.

BY A NURSEYMAN AT EXETER.

I OBSERVE a correspondent has recently asked for some particulars relative to this unrivalled Rose, as well as the treatment it requires to have it bloom vigorously out-doors. In compliance with the request, I beg to state that the *Rose Devoniensis* is a hybrid seedling obtained from the *Yellow China Rose* (*R. ochroleuca*), but it is not known by what variety it was impregnated.

As regards culture, I may, however, say that I recommend its being planted against a wall, with either an eastern or a western aspect, as the colour will thus be much richer than if exposed to the full influence of the sun upon a direct southern aspect. The soil should be a good sound loam and *well-decayed* dung, in equal proportions, as it requires a *rich compost* to enable it to develope its very large double yellow flowers to full perfection, being frequently more than five inches in diameter. Nothing can exceed *their fragrance*; they are produced very abundantly, and expand without any imperfection. I hesitate not to assert that it is decidedly the finest Rose, taking it all in all, that exists in this country. One of the greatest excellences of this most lovely Rose is that, notwithstanding the great quantity of petals in every flower, or, as is technically said, the great quantity of stuff in them, they expand most fully and freely. It is one of the most charming ornaments when grown during summer, in the open-air bed. No doubt many of the readers hereof have seen the large circular beds of it in the Hampton Court flower-garden, where it grows vigorously, and blooms in vast profusion. The beds have a dry substratum, a very rich light loam, and gradually rise to the centre. The plants will bear taking up and repotting in the autumn, cutting them back freely in January, and turning out into the beds in April. In winter, the plants are preserved in a cool but *dry* frame. In warm and dry situations, the plants do not require taking up, but several inches deep of *dry leaves* being laid between them protect them through winter.

TREATMENT OF CAMELLIAS, TO HAVE A SUCCESSION OF THEM IN BLOOM FOR A LONG PERIOD.

BY JOHN WILLIAMS, ESQ., LEEDS, YORKSHIRE.

As an amateur florist my pet has been the culture of Camellias, and by a regular process in culture I have them in bloom for *nine months* in the year. I have my first lot in bloom in October, the time when my Chrysanthemums are, and I have a continued show till the end of June. I have two dozen in bloom at each time. The soil I pot

in is one part turfy heath, two parts of rich turfy loam, to which I add another equal part, consisting of a portion of sharp sand, bone-dust, and charcoal, in small bits about the size of a field bean, and a similar quantity of well-rotted hotbed dung. These being incorporated well together, chopped, not sifted, for four months before using, make a compost for the plants I have never seen equalled elsewhere. In potting, I use a free drainage of turf cut into pieces the size of an Orleans plum, over which I place an inch of moss, and when putting in the compost in potting, I drop in a few pieces of gritty stone, in order to absorb any overplus of water. When I pot I take care to have the soil moderately dry, and in filling it in round the ball, to do it in regular layers, pressing it rather firm, so that no space be left. Many cultivators advise repotting just before the plants begin to grow. I think this plan better adapted for nurserymen, and those whose only object is to make wood. The production of blossoms is another thing; and in the case of luxuriant plants, this can only be done by a temporary check of some kind, the best of which is, in my opinion, limiting the supply of water at the root, and not calling a new series of fibres into play until the blossom-buds are decidedly formed. I repot Camellias soon after they have made their young growth—as soon as the young leaves are perfectly developed, and the end of the young wood at the point of junction with the wood of the former year begins to turn a little brown. The ball of the plant should be rather moist at shifting; and when it is in a pot-bound state, it should be immersed in tepid water for an hour, about three days previous, allowing a day or two for the superfluous water to drain away before potting; I place the ball immediately on the moss.

The thermometer is kept during the season of growth from 60° to 65° by day, and 50° to 55° by night. The treatment is now of a close and moist character, giving air in moderation and with caution every morning, from ten o'clock until noon, and then, unless very hot weather, shutting close up. A little fire-heat is given every morning, from seven o'clock until eleven, when it is taken away until four o'clock, and then applied for the evening.

When the young shoots become firm, the temperature is raised from 65° to 70° by day, and from 55° to 60° by night, and accompanied with a free circulation of air, avoiding all cold winds. The main business now is the concentration of those principles which form the future blossom-bud, now in an incipient state; strong action of the root with free watering, and an over-moist atmosphere, will readily convert the would-be blossom-bud into a second shoot. The plants are now very sparingly watered; in fact, a good smart syringing every afternoon, immediately the air was taken away, say four o'clock, is nearly sufficient. A little fire is made every afternoon, except on warm sunny days, about two o'clock; but it is put entirely out about five o'clock, as it is only requisite to warm the pipes or flues sufficiently to produce a genial vapour for the night; and half an hour after the

fire is pulled out, the flues and floor are saturated with water, to be evaporated by the next day's ventilation.

When the bud is formed, it requires feeding, and the fire is dispensed with entirely, merely observing, in the case of sunny afternoons, to make free use of sun-heat, by shutting up the house early in the afternoon, say from three to four o'clock, according to the weather. Air is given freely at all opportunities, and the plants are syringed heavily at seven o'clock in the morning, and again at four o'clock in the afternoon, saturating the floors and flues, or pipes, with water in the evening. The plants are well watered at the root whenever they require it, using liquid manure from old dung, in the proportion of one part liquid manure to four of clean water. The plants now possess abundance of new fibres, and their powerful action, assisted by liquid manure occasionally, produces both a plump bud and a dark leaf, and enables the plant to store up abundance of necessary food for the expanding blossoms.

At the time of blooming three objects are kept in view, viz., the complete development of the blossom-bud; the retaining it on the plant as long as possible afterwards; and feeding the later blossom-bud. Free watering, and the use of liquid manure as before recommended, must be persisted in, avoiding excess. The plants require to be kept *entirely moist* at the root while in the flowering state, rather more so indeed than at any other period. Syringing is entirely dispensed with, and in lieu thereof a deposit of dew takes place every afternoon at three or four o'clock. My Camellias have been thus treated all the past winter; and as it requires a little nicety to produce this fine dew without at the same time producing drip, I must state how I have managed it. My fires, which are smouldered up in the evening about ten o'clock, burn but little all night, or at least as slow as possible; they are stirred up directly the gardener comes in the morning, and burn as brisk as possible until eleven o'clock, when they are put entirely out until four o'clock in the afternoon. During the time the brisk fire is kept up, all the air possible is admitted consistent with the weather, so that all damp is carried away, and the leaf and blossoms made perfectly dry for three hours. About two o'clock, the channels on the flues, which have become about the warmth of new milk, are filled full of water, and the floors are flooded as well. This produces a genial steam, which, instead of being forced immediately to the roof by a high temperature, to be condensed and become drip, floats over the plants, and is gradually condensed on the leaves and flowers, or remains suspended in the atmosphere. The flues are watered again at four o'clock, and the plants being now covered with dew, I find it expedient to give a little back air at the ventilators, and this remains all night. By these means my Camellias have been covered every night, through the present winter, with a dew exactly similar to that in a fine night in May out-of-doors. If, however, the weather is so severe that I cannot give air at all, I instantly lower my fires, and the house is kept at 50° heat.

When the plants have done blooming, the temperature is from 50° to 55° by day, and from 45° to 50° at night; the necessary consequence of which is, to cause a great number of wood-buds to push than otherwise would. It also tends to restore the exhaustion into which they have been thrown by blossoming, and render them more excitable when heat is applied.

THE FAILURE OF PLANTS BLOOMING AFTER REMOVAL FROM FRAMES, ETC., INTO SITTING-ROOMS.

BY A SUFFERER.

THE following remarks were drawn up by a friend of mine, with a view to send them for insertion in your Magazine, since then he has suddenly been removed by death to another world, but to a FAIRER CLIME. I discovered the article amongst his papers, and therefore forward it for insertion.—(W. HALL.)

In common with a numerous class of the subscribers to your excellent and useful publication, who have no greenhouse, and who trust to the ornamenting of their sitting-rooms by the removal from pits and frames, or from the open air, of their floral favourites, as these come into bloom, I have experienced much disappointment in the frequent failure of such bloom immediately on the removal of the plants into a sitting-room, as the beautiful class of Fuchsias, for instance, and unfortunately the objection lies against many others, though, perhaps, to few in the same degree. The amateur watches with delight a handsome plant bursting into bloom, and, to enjoy it the more, he has it carried to the house, where, with his other favourites, he may have it always before him; but, to his mortification, after two or three days pass, flower after flower, and bud after bud, drops off, and he soon finds his admiration limited to the beauty of the foliage.

This is an evil which all admirers of flowers have felt as a serious one; but I cannot think that it is one without a remedy, and that if the precise cause were better understood the grievance might not be obviated. Perhaps this may fall under the eye of some of your scientific readers, who, I am certain, would confer very great favour upon many of your subscribers, by one or more articles on the subject suited to the pages of your work.

It is undoubted that the dry atmosphere of a sitting-room is one ill fitted for plants, particularly such as are just introduced when coming into flower; and it is equally undoubted that over-watering, or an undue delay in giving water, will produce the mischief to which I have referred; but I doubt whether the first-mentioned cause be enough, in itself, if care be taken to guard against the others. In my own experience, I have sedulously watched the management of a Fuchsia in the circumstances mentioned, and

thought that every precaution was taken against either over or under watering, while I have, nevertheless, been disappointed at finding that I could not preserve the flower-buds. Thence I conclude there must be other causes in operation, independent of the quantity or regularity of water supplied. The regulation of the air, it will be said, is the next point. True, and I have not omitted this—that is, in giving to the plants, during summer, as well as at other seasons, all the air possible, consistent with the use of the apartments in question.

The object of the inquiry, at which I have thus hastily pointed, is to ascertain what are the causes (beyond those inevitable ones already noticed, and I exclude all the notice of gas) which impede the bloom, or cause the entire dropping off of the flower-buds of plants in rooms where the strictest attention is paid to the watering and airing of the plants. To the amateur florist this is an inquiry of much interest, and while I hope that these hasty remarks may be the means of calling forth some scientific explanation of the causes to which I have referred, they may possibly induce some of your many readers, who have time and opportunity, to give their attention, in the way of experiment, to a useful and interesting subject.

New Manures.—An equally interesting subject for experiment by amateur florists would be in the guano, and other new and powerful manures lately introduced to use in agriculture. Amidst the pursuits of the florist, where rich and vigorous bloom, even in many cases at the sacrifice of the plant for the year, is so much an object, a vast deal will, some day or other, be done with these powerful auxiliaries, and those having time and opportunity ought to be at their experiments, and not be shy to communicate the results through such channels as yours. Much is to be done in this way, and the only caution necessary is to be sparing in the application of the powerful stimulants in the first trials.

TREATMENT OF BRITISH FERNS, ETC.

BY AN AMATEUR PRACTITIONER IN DERBYSHIRE.

At page 54 of last month's Magazine I observe a FLORICULTURIST requests particulars of managing British Ferns in a *cultivated state*. I have long been an ardent admirer of this most interesting class of plants, as well as their allies "the Mosses and Lichens," and possess a very extensive collection. I shall be glad to assist a Floriculturist, who perhaps is only a beginner, and, for my first paper, I transmit observations on my pets, "*the Lichens and Mosses.*" The others shall follow.

The culture of these plants is a pleasing object, and many of them are comparatively easy; for example, the genus *Marchantea*, all grow and flower freely in cultivation; many of the *Jungermannias* also grow and flower freely in a house; and I had for some years a

plant of that pretty and rare *Cryptogama Bryumroseum* growing in a pot in a greenhouse.

I regret the absence of these interesting members of the vegetable kingdom in our botanical gardens, not even a square yard of ground being bestowed them amidst all the waste and grandeur around. After gazing upon huge plants, what an agreeable change would it not be to turn to a collection of Mosses in a shady corner, all correctly named. As a proof of their easy culture, it is only necessary to call attention to the difficulty of eradicating them where troublesome and out of place. Moist shady places in general are the situations which Nature has provided for them; and if success is wanted, her rules must not be deviated from. I believe there is a collection of Mosses still in existence at Chatsworth; and I have heard, from an eye-witness, that they are grown at Edinburgh, under the stage of a greenhouse, in pots, and are looking very well; those at Chatsworth are grown upon a rockwork. Pots are to be preferred, for two reasons,—water can be more judiciously given; tender varieties, liable to damp off in winter, can then be removed to airy situations and be duly attended to.

A low rustic house, built for the purpose on a north wall, or shaded by trees, where they could be protected in severe weather, is the best situation for their growth; this building can always be kept clean, and accessible even in winter. Fire-heat must be withheld; this would induce Mosses to produce leaves instead of fruit, by which annual species are propagated. Keeping them too close would have the same effect, consequently the weather must be very bad to prevent air being given.

The soil for potting must be varied according to the nature of the species. They are found upon loam, peat, sand, stones, or bricks, wood, and some even grow in water. The mode of potting requires a fuller explanation. Such as *Polytrichum juniperinum*, which roots in soil, may be potted in the usual way; only, instead of a single plant, a tuft, or number, must be put together; this must be done when the plants are young. If possible, obtain a good portion of native soil with them, as they will succeed better in it than any compost you can make for them. For those which are found upon rotten wood and decayed vegetable matter, such as *Hypnum striatum*, *H. undulatum*, etc., rough turfy peat, mixed with pieces of half-decayed wood, closely packed, answers the purpose; on this the plants should be fastened down; or, if possible, obtain the piece of wood, or whatever material they may be attached to, and fasten to the pot, without disturbing the roots. I have often found *Hypnum rutabulum* clinging to wood without any visible roots. Those found on stones must be treated in like manner, only substituting sandstone instead of wood. The aquatic species, *Fontinalis antipyretica*, is an example; it should be grown in water, upon stones or gravel. *Hypnum ruscifolium* grows on stones in damp places, and will do best in water, but not covered with it. The various species of *Sphagnum*, found in boggy places, and generally called *White Moss*, must be kept very moist; if kept under water, however,

it soon dies. Mosses do not require potting so long as their drainage remains good, which is a point of great importance in their cultivation. I am decidedly of opinion, that this division of cryptogamic plants might be grown in pots to produce perfect capsules, at least such as do so in a wild state. *Bryum ligulatum* and some other varieties, although plentiful, are rarely seen in fruit; the former is scorched up in summer, yet, as soon as the autumn rains fall upon it, it springs again. It is a well-known fact that *Tortula muralis* fruits in winter, and that its spores are all dispersed in spring. Now, when bricks are taken out of the kiln in summer, after being red-hot, and laid down in a damp place where *Tortula muralis* had never been seen before, this plant may be seen in the following winter peeping out of the crevices, as if the germ had withstood the power of the devouring element. Where did the seeds of these come from, or, how were they preserved? Dr. Lindley, in his publication, "The Vegetable Kingdom," p. 66, makes the following remark, which bears on the subject:—"The first green crust upon the cinders of Ascension consists of minute Mosses, they form more than a quarter of the whole Flora of Melville Island; and the black and lifeless soil of New South Shetland is covered with specks of Mosses struggling for existence. How they find their way to such places, and under what laws they are created, are mysteries that human ingenuity has not yet succeeded in unveiling." From this it would appear that Mosses were the first inhabitants of our globe, at least on dry land, and that they first began to pave the way for the existence of man.

With regard to the propagation of this group of plants, no proper directions at present can be given; one thing is certain, they must be produced from spores in the first instance; and where perfect capsules are found young plants may be relied upon. There are some species, such as *Hypnum proliferum*, which, if the branches are divided, will root like a *Lycopodium*. To secure an ordinary collection, plenty will be found propagated by the hand of nature, even within thirty miles of London, and in most parts of remoter distances; in my own immediate neighbourhood they abound.

Lichens which can be cultivated are those found on the ground,—*Baeomyces*, *Peltidea*, *Scyphophorus*, and some species of *Citraria*. Those upon trees and stones are more difficult, especially the former; the latter, when removed on the stones to which they are attached, will live only for one season. I have kept *Scyphophorus paxidatus* and *S. cocciferus* in pots for two years, potted in lime rubbish, scraped off an old wall, where they were found. This wall was shaded in summer by fruit trees, and after the fall of the leaf it was exposed to the sun; here the plants remained, without receiving so much as a drop of water, excepting what they obtained from the clouds.

REMARKS ON THE CULTIVATION OF BEGONIAS.

BY KEWENSIS.

THIS beautiful and highly interesting genus is now become most deservedly popular, and its attractions very much increased within the last half-dozen years, by the introduction of many exceedingly handsome species and varieties; not only so from the *brilliancy* of the flowers, but their striking beautifully marked and shaded foliage; most of which you have described in your monthly lists of new and rare plants. There now are upwards of eighty kinds in our own country, and a collection of the handsomest ought to be grown in every stove; and as several will succeed well in the *greenhouse*, not one ought to be without them. I intend to furnish a *descriptive* list of all the *Begonias* for the following month's Magazine, and those which may be termed greenhouse plants will be pointed out.

In giving particulars of cultivation, I beg to observe that all the stove kinds enjoy a *moist* atmosphere of from 75° to 80° of temperature in summer, with a *slight shade* to break the rays of the *mid-day* sun. In winter, the atmosphere should be kept dry, especially in cloudy weather, and the temperature allowed to fall as low as 58°. It is worthy of remark, too, that even the greenhouse kinds are much benefited by heat and moisture during the *early part* of the season. As to the soil most congenial to their nature, there appear to be various opinions. From experience, I am satisfied that sandy loam and leaf-mould are the two principal materials; and for the kinds that grow luxuriantly, these should be used in equal proportions. For some species, such as *B. coccinea*, which are liable to damp off, the quantity of vegetable matter may be less, and the deficiency made up with silver sand. Damping, however, cannot altogether be attributed to soil, but must be ascribed to bad drainage, or to moisture when the plant does not require it.

In preparing the pots, some prefer small potsherds for drainage; this, in my opinion, is almost as bad as using sifted soil, for if the crevices are small, they will be the more easily filled up. For an eight-inch pot, which may be taken as an average size for growing a specimen plant, the potsherds should not be less than three inches across—the hollow pieces (not flat ones) are the best; and if laid to the depth of two or three inches, and properly covered with pieces of turf, there will be no danger of the roots suffering from damp, if water is judiciously given.

Begonias being, in general, plants of free growth, and delighting in fresh soil, it is necessary to repot them twice in the course of a year, viz., February and August; but this rule, like many more in gardening, is not without an exception; one plant may grow faster than another, under the same circumstances, and therefore ought to be repotted when it requires it, nothing being worse for any plant than to cramp its roots.

As Begonias are generally intermixed with other plants, and receive a similar supply of water, both in summer and winter, they may well present a sickly appearance. There are few plants that require a more liberal supply during summer than they do; indeed, some of the robust-growing sorts will flourish with their pots half immersed in water; but, like other plants, they require a season of rest, at which time comparatively little moisture is required. This period is clearly pointed out by nature. In October, all the species with which I am acquainted begin to show that water should then be gradually withheld; if it is continued, some begin to drop their leaves, others to decay at the root, or assume a languid appearance, therefore it is obvious that they should be kept dry from the 1st of November to the 1st of February. During that time, if water is given once or twice a week at most, it will be sufficient, and the herbaceous sorts may be kept quite dry. Although many species remain green and healthy in the early part of winter, the growth they make is but trifling, nor should they be induced to grow then, as a general rule; for if they are deprived of the season which nature has provided for *their rest*, the best of management will not compensate for it in twelve months afterwards.

There are some who imagine that a bushy plant cannot be produced unless it has been cut down in winter or pinched back during the growing season; but this is a mistake. If *B. undulata*, or any of the fibrous-rooted sorts, which require pruning, are cut down in winter, the root will in all probability die, and if pinched back, when are they to flower? To such as *B. Evansiana* the knife is never required, because the stems die down annually; and it is never necessary to cut such as *B. heracleifolia*; therefore this matter rests with the tall-growing sorts. To explain this, it will be necessary to consider what functions such stems perform. Take *B. undulata* for an example: every stem of one year's growth, notwithstanding its flowering, is a magazine, in which secretions are stored for the support, during a certain time, of those which may arise from its base the following season, and thus the stems become analogous to the pseudo-bulbs in Orchids; were this not the case, suckers would rise as strong without the stem as with it, and they would not be liable to damp off, although it should receive an injury. From this it is evident that all the pruning that is necessary is to cut out all the stems above two years old, and this should be done in spring, when the plant is re-potted, in order to give room for the young shoots.

As to propagation, perhaps few plants are so easily increased as Begonias. All those from which cuttings can be taken will strike freely under ordinary treatment, and such as *B. Barkeri*, from which cuttings cannot be had, may be abundantly multiplied from seed. The seed should be sown as soon as gathered, in light sandy soil, and placed in a moist situation, where the seedlings may be shaded from the rays of the sun; and, when large enough, pot off singly, into small sixty-sized pots, and the growth be promoted, either in a stove,

or hotbed frame, as much as possible, in order to get them strong before winter. During the period of *rest*, this first season, a little extra care must be given not to allow the roots to be *dust-dry*, or they will *shrivel* and be destroyed, but keep them *just damp*; and when the time arrives to start them into growth, give but a small increase of water, and that *gradually*.

A CHEAP AND SUCCESSFUL METHOD OF STRIKING CUTTINGS OF PLANTS.

BY AN AMATEUR LADY GARDENER IN SUSSEX.

HAVING several oblong-shaped shallow deal boxes, about six inches deep, early last spring I sowed in them various *tender* annual seeds, and placed the boxes upon the back shelf of a small plant-stove. At the time when I sowed the seeds, I had cuttings of several kinds of greenhouse plants I wished to strike, and thinking that if a portion of fine sand was placed around the side of the box, and the cuttings then be inserted firmly therein, they would probably take root. Fearing that, thus experimenting, I might not succeed as I hoped, I divided the lot of cuttings, and inserted the other half in the same kind of sand in pots, and placed them in the same situation as the boxes. Each were duly attended to afterwards, and the result was, far more of the cuttings struck in the *box* than in the *pot*, and a fortnight sooner. The porous nature of the wood, and the warmth it retains, I am certain very much contribute to promote the more *certain* and *early rooting* of the cuttings than those inserted in pots. I strongly recommend the adoption of this method to all amateur pot-plant cultivators; it is both *cheap* and *successful*.

NOTES ON NEW AND SELECT PLANTS.

51. *ORTISOPHON SPICATUS*. Nat. Ord. *Labiatae* (*Salvia*, etc.) The foliage is very fragrant. The flowers are large, white. The floral bracts are green, tinged with violet. It was originally introduced from Ocaña, and requires a temperature similar to the *Salvias*. M. Linden has plants on sale.

52. *CALATHÆA PARDINA*. Syn. *Maranta pardina*. This splendid plant was discovered by M. Schlim, in New Granada, growing in damp shady forests. Each leaf is about one foot long, and nearly half a foot broad, of a lively green, and along *each side*, midway between the midrib and edge of the leaf, there is a row of *large*, regular, oblong-square spots, of a deep violet-black. The surface of each leaf having two rows of these very distinct spots, contrasts beautifully with the lively green ground-colour. The flowers are produced in a spike, half a yard high, each blossom being two inches across, of a pretty

bright yellow. It is highly entitled to a place in every hothouse or warm greenhouse. M. Linden has plants for sale.

53. *CALATHÆA METALLICA*. Syn. *Maranta metallica*. This fine species was discovered by M. J. Triana, in the pestilential forests of Choco, in New Granada. The leaves are large, of a dark green, intermingling on the surface with a *golden metallic* hue; along each side of the midrib is a dark velvety shade. The flowers are small, a violet colour, forming a cylindrical spike. M. Linden has plants for sale.

54. *PINCKNEYA IONANTHA*. This handsome plant belongs to the Natural Order *Rubiaceæ*, and the section in which are *Luculia*, *Rondeletia*, etc. M. Schlim discovered this species in New Granada. It is a handsome shrub, bearing its flowers in terminal corymbose heads. Each blossom an inch and a half long, hairy, and of a deep violet colour. M. Linden has plants for sale.

55. *CINCHONA NOBILIS*. Syn. *C. purpurascens*. The *Cinchona officinalis* supplies the Peruvian Bark of our spices. The *C. nobilis* is a magnificent plant. The leaves have a *satin-green* appearance, with the midribs of a rosy purple colour. The flowers are large, of a pure snow-white. It requires the stove temperature. M. Linden has plants of it.

56. *MERIANIA MACRANTHA*. It belongs to the Natural Order of *Melastomaceæ*. Each blossom is four inches across, of a beautiful rose colour, very handsome and ornamental. It deserves a place in every stove. M. Linden has plants of it.

57. *ESCALLONIA DENSA*. It forms a bushy shrub, having neat *shining*, small-sized foliage. The flowers are of a light rosy pink. It is a handsome plant, and as hardy as the other species we possess. M. Linden has plants for sale.

58. *APHELANDRA VARIEGATA*. Nat. Ord. *Acanthaceæ*. It is a native of Brazil, an extremely handsome plant, and worthy a place in every stove. The plants at Kew are about half a yard high, moderately branched. Leaves large (nine inches long by four broad), strongly ribbed, and the lower portion of each rib (or vein) has a very distinct white streak. The flowers are produced in long terminal spikes (nine inches long), and arranged in four rows, of rich red orange-coloured scales; from each of these scales proceed (one at a time) the flowers, which are of a *Salvia-like* shape, and a bright uniform yellow. It is an excellent winter-blooming plant. (*Fig. in Bot. Mag.* 4899.)

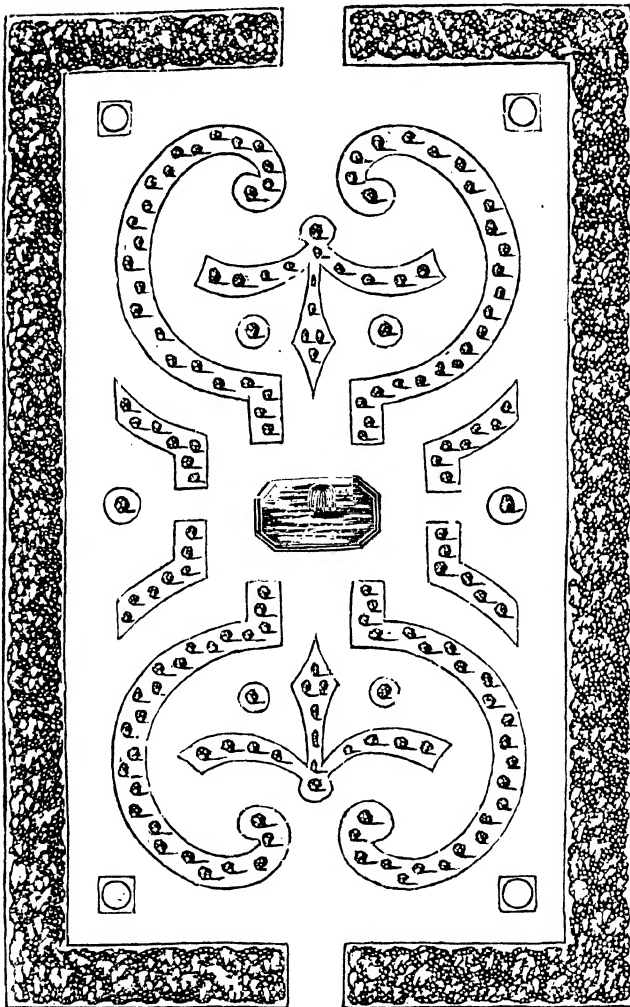
59. *ABALIA PAPYRIFERA* (*Rice-paper plant*).—This is the well-known “rice-paper” of the Chinese. Through the kindness of the Governor of Hong Kong, Sir John Bowring, and his son J. C. Bowring, Esq., a plant of it has been sent to the Royal Gardens at Kew, where, in a damp stove, it produced its fine branching large panicles of blossoms in December, 1855. The plant rises from five to seven feet high. Stem branching above, and about three to four inches in diameter, forming very little wood, filled with the most exquisitely white pith, of which the famous “rice-paper” of China is made.

The full-grown leaves are nearly a foot long, cordate, five to seven lobed. The panicles of flowers are at the extremities of the stem or branches. The description of a well-grown plant at Hong Kong is given as follows:—"Seven feet high, with a circumference of its terminal branches of twenty feet, and throwing out twelve to fourteen panicles three feet long, drooping like magnificent plumes in regular form over the large dark palmate leaves." It seems to be a native exclusively of the Island of Formosa, and no botanist has ever seen it in its native locality. By the continued exertions of Sir John Bowring, he induced the Chinese traders to procure living plants, when on their voyage to that island for the cargoes of stems to make their paper.

60. *NYCTANTHES ARBOR-TRISTIS* (*Night Jasmine*). Nat. Ord. *Jasmineæ*. This interesting shrubby plant is a native of India, and was introduced into England by Sir Joseph Banks. Sir William Jones tells us, "This gay tree (for nothing *sorrowful* appears in its nature) spreads its rich odour to a considerable distance every evening, but at sunrise it sheds most of its *night-flowers*, which are collected with care, for the use of the perfumers and dyers. My pundits unanimously assure me that the plant before us is their *Sep'halica*, thus named because bees are supposed to sleep on the blossoms." The leaves are heart-shaped, about five inches long. The flowers are produced in terminal corymbose heads, each having about a dozen blossoms. Each flower is similar in form to a *Phlox*, about an inch across, with a tube half an inch long. The tube is an orange-red, both inside and outside, and the rest of the blossom is pure white. It is usually treated as a stove plant, but when kept at *rest* through winter in a dry part of a greenhouse, and early in spring placed in a hotbed frame, or other similar temperature, to start it into early growth, then removed back to the greenhouse, it will flourish throughout the summer season. It is well worth growing in either stove or greenhouse. (*Fig. in Bot. Mag.* 4900.)

61. *TECOMA FULVA*. Synonyme *Bignonia fulva*. This most beautiful flowering species is a native of Peru; plants have recently bloomed in the nurseries of Messrs. Veitch, at Exeter and Chelsea. It is a shrub of *erect* habit; the branches are of a rich purplish-brown, *creeping*, and it is said will creep up trees, in its native situations, to the height of from forty to fifty feet. The leaves are pinnate, each having from five to six pairs, somewhat similar to the *Bignonia radicans*. The flowers are produced numerously, in large *racemes*, each terminating cluster of them having from twenty to thirty blossoms. Each blossom is tube-shaped, about two inches long, and at the widest part nearly half an inch through; they are of a bright red on the upper side, and an orange-yellow on the under side; very beautiful. It is worth a situation in every greenhouse. (*Fig. in Bot. Mag.* 4896.)

DESIGN FOR A FLOWER GARDEN.



10 0 40 ft.

. THE beds in the annexed design are supposed to be laid down on

gravel, with box or some other suitable material for edging. The circular beds are intended for masses, and the others for a mixture of flowers of the kinds most approved. A flower border may be formed inside the shrubbery, if more agreeable to the taste of the occupier. The small squares enclosing a circle are intended for vases, or for other embellishments; and the basin, with its fountain in the centre, may be furnished with gold and silver fish. A covered seat or alcove may be placed at the extremity of the garden, where the walk is indicated, if preferred.

MISCELLANEOUS.

OUVIRANDRA FENESTRALIS (*Water Yam, or Lace-leaf*.) Nat. Ord. *Juncaginæ*. This remarkable plant was first discovered in Madagascar, about sixty years ago, by Auburt du Petit-Thouars. Sir W. I. Hooker informs us that more than thirty years ago he received *flowering specimens* of it; but *now* living plants have been brought from Madagascar to this country, by the Rev. William Ellis, who has sent two plants to Kew, and has placed others under the care of Messrs. Veitch, at Chelsea. From a publication of Du Petit Thouars', where a figure of it was given, Mr. Ellis copied one prior to his late visit to Madagascar, and on his arrival he exhibited the sketch to the natives. He states, "At length I found one man who knew where it grew; his master, who had shown him many acts of kindness, allowed him to go in search for it, and after two or three days he returned, saying he had found the plant growing in a stream of water, but could not get to it, owing to the number of crocodiles in the stream; the late rains, it was said, had made these animals more numerous than usual at that particular place. At length, however, the man brought me a fine lot of plants in excellent condition. The natives describe this plant as growing on the *margin of running streams*. The root is about an inch thick, and six to nine inches long, often branching in different directions, like the roots of *ginger*. It is composed of a white fleshy substance, apparently without large or tough fibres, and is covered with a light brown skin. The roots of the plant adhere very firmly to the loam or clay of the river bank. This plant is valuable to the natives, who at certain seasons of the year gather it as an article of food, the fleshy root, when cooked, yielding a farinaceous substance resembling yam. It is not only a rare and curious but a singularly beautiful plant, both in structure and colour. From the several crowns of the branching root, growing often nearly a foot deep in water, a number of graceful leaves, nine or ten inches long and two or three inches broad, rise on slender stalks, and spread out horizontally, *just beneath the surface of the water*. The flower-stalk rises from the centre of the leaves, and the branching or fork-like head of flowers is curious; but the structure of some of the leaves is peculiarly so, and seems like a *living fibrous skeleton*, rather than a

perfect leaf. The longitudinal fibres (commonly called nerves or ribs) extend in curved lines along the entire length of the leaf, and are united by thread-like fibres or veins, crossing them from side to side, at short distances from each other, forming a most beautiful *net-work*, without the spaces between the veins being filled up. The whole leaf looks as if composed of fine tendrils, wrought after a most regular pattern, so as to resemble a piece of *bright green lace*, or *open needlework*. Each leaf rises from the crown on the root like a short, delicate-looking, pale green, or yellow fibre, gradually unfolding its feathery sides, and increasing in size as it spreads beneath the water. The leaves in their several stages of growth pass through almost every gradation of colour, from pale yellow to a dark olive-green, becoming, before they finally decay, brown, or nearly black; while air-bubbles of considerable size frequently appear under the full-formed and healthy leaves. It is scarcely possible to imagine any object of the kind more attractive than a full-grown plant, with its dark green leaves forming the limit of a circle two or three feet in diameter, and presenting in the transparent water, within that circle, leaves in every stage of development, both as it regards colour and size. Nor is it less curious to notice, that these slender and fragile structures, apparently not more substantial than the gossamer, and flexible as a feather, still possess a tenacity and a wiriness which allow the delicate leaf to be raised by the hand to the surface of the water without injury. The form of the leaf is *oblong*, rather blunt at the end, about eight inches long and three broad; the midrib and strong nerves extending lengthways, curve and meet at each end. If the slender cross-nerves or nervelets are examined under a microscope, they will be found to consist of *very slender* nerves, surrounded by a portion of parenchyma on each side; sometimes the parenchyma is extended, so that the open portion is of an oval form, and in some *rare instances*, a leaf is formed of parenchyma, traversed by the slender nerves, and having an entirely undivided green surface. It is a most interesting and beautiful plant, being very easily cultivated in the stove or warm greenhouse. It merits a place wherever it can be cultivated. (*Fig. in Bot. Mag.* 4894.)

CLIMBING ROSES IN POTS.—The present being the best time for planting and potting Roses (November), I forward the following extract on *climbers*, in order to promote their more general culture in pots. I have adopted it for the last ten years with admirable success, and have some in bloom all the year. They should be invariably grown on their own roots; and being chiefly kept in pots, their cultivation may commence at any season we please. What we have hitherto been accustomed to regard as climbers are from the classes Boursault, Sempervirens, Ayrshire, etc. Magnificent as such must be regarded when growing in the open ground, often to the height of twenty feet, and covered with immense trusses of bloom, their semi-double and transient flowers render the greater part not altogether suitable for growing in pots. A growth not too vigorous, and finely

shaped flowers, should be the criteria with regard to Roses grown in pots as climbers. As a great height, then, is not in this instance desirable, the various Hybrids, the Noisettes, and Bourbons may be chosen, and trained upwards to about three feet, which will probably be found as high as convenient or manageable; not that we would, however, altogether exclude the Ayrshire and Sempervirens, for among them a few admirable Roses are to be found. Now, one great point to be held in view is, to induce the plants to flower from the summit to the ground; for if a few flowers only are to be produced at the top of the plant, then the dwarfer it can be grown the better. This, complete flowering, judicious pruning, and training will accomplish.

TRAINING AND PRUNING CLIMBERS.—In training, they may be formed into any shape. Such varieties as have long twining or flexible shoots may be trained spirally, with which view, in pruning, in the first instance, they should be cut-in close, to induce them to form lengthened shoots, which should be trained in their proper course during the season of growth. By this treatment, in all probability, they will not flower the first year; but if, after this, the main shoots be merely stopped, and the lateral ones cut within a few eyes, an abundance of bloom will be secured the succeeding year. Any superfluous shoots may, of course, be removed; but under this system of growth a small amount of pruning only is necessary. The stiff, erect-growing kinds may be formed into short pillars of a pyramidal form, or trained to flat wires. The former presents the most natural appearance; and to effect this, from three to five shoots may be allowed in the first instance, and pruned of different lengths: these will throw out laterals, and a short pillar Rose is formed. In after seasons they may be pruned, as proposed for other Roses.

CLIMBING VARIETIES.—Here, then, is a list of such varieties as appear best adapted for this purpose.

TO TRAIN SPIRALLY, OR AS TWINERS. *Hybrids of the Chinese*—Beauty of Billiard, beautiful vivid scarlet; Blairii, No. 2, large blush pink; Fulgens, rich velvety crimson; General Kleber, purplish red, changing to violet; Hippocrates, deep crimson lilac; *Ne Plus Ultra, fine carmine; Pompon Bicolor, purple and crimson shaded; *Princess Augusta, bright crimson and purple mottled; Triomphe de Laqueue, red and purple, shaded. *Boursault*—*Amadis, purplish crimson; Gracilis, bright rosy red. *Ayrshire*—*Ruga, pale flesh; *Splendens, white, tipped with red. *Sempervirens*—Banksiaflora, white, centre pale yellow; Félicité Perpétue, creamy white; Leopoldine d'Orleans, white, shaded with rose; Myrianthes Rénoncule, delicate rose. *Bourbon*—De L'Isle, bright rose; Etoile de Lyons, purplish rose; Phoenix, reddish purple; Souvenir D'Anselme, bright scarlet. *Noisette*—Desprez, rose and reddish yellow; D'Espalais, rose; Du Luxembourg, lilac rose, red centre; Fleur de Jeune Age, white, yellow centre; La Biche, large pale flesh; Lemarque, fine sulphur yellow; *Prudence Roeser, lilac blush, sometimes rose, blooming in clusters.

TO TRAIN UPRIGHT, AS PILLARS OR PYRAMIDS. *Hybrids of the Chinese*—Aurora, crimson and violet shaded, sometimes striped with white; Belle de Rosny, delicate peach; Belle Marie, superb large rose; Brennus, rich carmine, large; Captain Sisolet, beautiful rose; Charles Duval, fine deep pink; Chénédolé, rich vivid crimson, very large; Dandigné de la Blanchaia, dark slaty purple; Duke of Devonshire, rosy lilac, striped with white; *Great Western, crimson and purple, very large, blooming in clusters; *Henry Barbet, deep vivid rose; Hybrid Stadtholder, fine light rose; La Grandeur, large rose; *Lord John Russell, brilliant even rose; Madame Plantier, pure white; Madame Rameau, dull violet purple, centre bright crimson; Paul Perras, beautiful large rose; Richelieu (Duval), pale pink, finely formed; Victor Hugo, large rosy lilac. *Hybrid Perpetual*—Dr. Marx, rosy carmine; Duchess of Sutherland, fine pale rose; Madame Laffay, brilliant rose, superb. *Bourbon*—Bouquet de Flore, light carmine; Hennequin, bright crimson-purple, fine; Marquise d'Ivry, deep bright rose. *Noisette*—*Bouton Nankin, nankeen, changing to blush, distinct; *Fellenberg, bright crimson; *Euphrosyne, pale rose and yellow, very sweet. (*Paul's Treatise on Pot Roses.*)

QUESTIONS, ANSWERS, AND REMARKS.

TREATMENT OF THE JACOBÆA LILY.—*How am I to cultivate* these splendid Lilies? —*Lucy.* [Plant them in equal portions of turfy loam and sandy peat, with a free drainage of crocks and rough pieces of turfy loam. After potting, place them in a frame, with a gentle hotbed heat; when the flower-stem just makes its appearance, then remove them into a warm place in the greenhouse. If a portion be potted a little later in the season, they will succeed the others, and prolong the blooming season. A season of rest will be required from October to February. Withhold water after September 1st, and keep them dry till potting time in February.—*Editor.*]

THE OSAGE ORANGE.—Is it an established fact that this plant is to supersede the Whitethorn as a hedge plant? When I went to South Wales twenty-four months back, I found there some plants which had been imported from Philadelphia and planted several years; but they had only annually produced a few abortive branches and leaves, and had not made half an inch of wood in twelve months. It is true they were not planted under the most favourable circumstances, nor had they much attention afterwards; but Whitethorn, side by side with them, grew as well as it generally grows, making from one to three feet of good strong growth every season. In June last year, I had the ground dug round the Osage Orange, gave it a good coat of dung, and soaked the plants occasionally with manure-water. This moved the plants a little, but still I only got a straggling branch here and there, two or three inches long. I have read the pamphlet on this plant published by an American seedsman twelve or eighteen months back, and have seen the representations of hedges, which are certainly first-rate in every respect, but I am sorry my own experience does not accord with that published in America. I fear our summers and autumns are not warm enough to ripen this free-growing plant, that is, if it ever grows freely in this country, and hence it will suffer much from the winter's frost; but I may be mistaken. The examples above specified, however, warrant me in doubting this to be a first-rate plant for our climate, for if it will not grow in a dripping climate like South Wales, or if it will not bear comparison with the Whitethorn there, I fear it will not be of much value through the country generally.—*W. P. Ayres, Whittlebury Lodge.*

HANDSOMEST, DISTINCT, AND SHOWY FUCHSIAS.—Observing a correspondent requests a list, I forward the following, which I know cannot be excelled.

FINEST SHOW FUCHSIAS.—*Autocrat*, Banks; tube and sepals crimson, with a very dark corolla; well reflexed. *Favourite*, Banks; brilliant scarlet tube and sepals, and a splendid violet-blue corolla, of thick substance; superb. *Beauty of the Bower*, Banks; rich scarlet tube and sepals, and a deep purple corolla; well reflexed. *Cartoni*; rich crimson tube and sepals, with a very deep violet corolla; very neatly reflexed. *Clio*; white tube and sepals, with a ruby scarlet corolla; free bloomer, stout flower, very handsome. *Duchess of Lancaster*; white tube and sepals, and a rosy violet corolla; it is beautifully reflexed, and very handsome. *Maid of Kent*, Banks; clear waxy-white tube and sepals, with a rich plum-coloured puce corolla; well reflexed and of good substance, and very pretty. *Lady Franklin*; pure white tube and sepals, with a purple-crimson corolla; well reflexed, and very fine. *Omega*; crimson tube and sepals, with a bright lilac corolla; free blooming, and pretty. *Perfection*, Standish; pure white, with blush-pink corolla; well reflexed; a very distinct, neat, and pretty flower. *Prince Albert*, Banks; tube and sepals a rich scarlet-crimson, with a deep violet corolla; well reflexed; a superb flower in all respects. *Perugino*, Story; tube and sepals large, scarlet, with a striking striped corolla, of very distinct rose and purple flakes; it is well reflexed, and handsome. *Princess of Prussia*; white tube and sepals, and the corolla a bluish carmine; large and handsome. *Queen of Hanover*; tube and sepals pure white, corolla a bright carmine, and prettily reflexed. *Thalia*; tube and sepals white, corolla deep rose; it has the charming habit of the *Duchess of Lancaster*. *Fairy Queen*, Banks; tube and sepals white, corolla a rich plum-pace colour; very pretty. *Hendersonii*; a very distinct double variety, tube and sepals rich crimson, the corolla a globular mass of rich purple velvet petals; a free bloomer, very handsome. *Climax*, Banks; tube and sepals a rich crimson, corolla large, of a fine blue-violet colour. *Lady Emily Cavendish*; tube and sepals pink, with rich purple corolla; very pretty.

The following are the *new varieties* that have crimson or scarlet tube and sepals, with white corollas:—*Empress Eugenie*, Story; tube and sepals rosy crimson, spread widely, fully exhibiting the pure white corolla; very pretty. *Mrs. Story*, Story; scarlet tube and sepals, well reflexed, corolla white; of good substance. *Lady of the Lake*, Story; tube and sepals deep crimson, with a blush-white corolla; very pretty. *Queen Victoria*, Story; tube and sepals a scarlet-crimson, well reflexed, corolla clear white; very handsome. *Ranunculastora*, Story; tube and sepals scarlet, with a double white corolla; very pretty. *Rouge et Blanc*; tube and sepals large, a deep scarlet, well reflexed, corolla white, very elegant. *Water Nymph*, Story; bright scarlet (globe) tube and sepals, corolla pure white; very handsome. *Raffaëlle*, Story; tube and sepals crimson, well reflexed, corolla chocolate, with flaked stripes of rose; free bloomer, and very pretty.—*The Foreman of a London Nursery*.

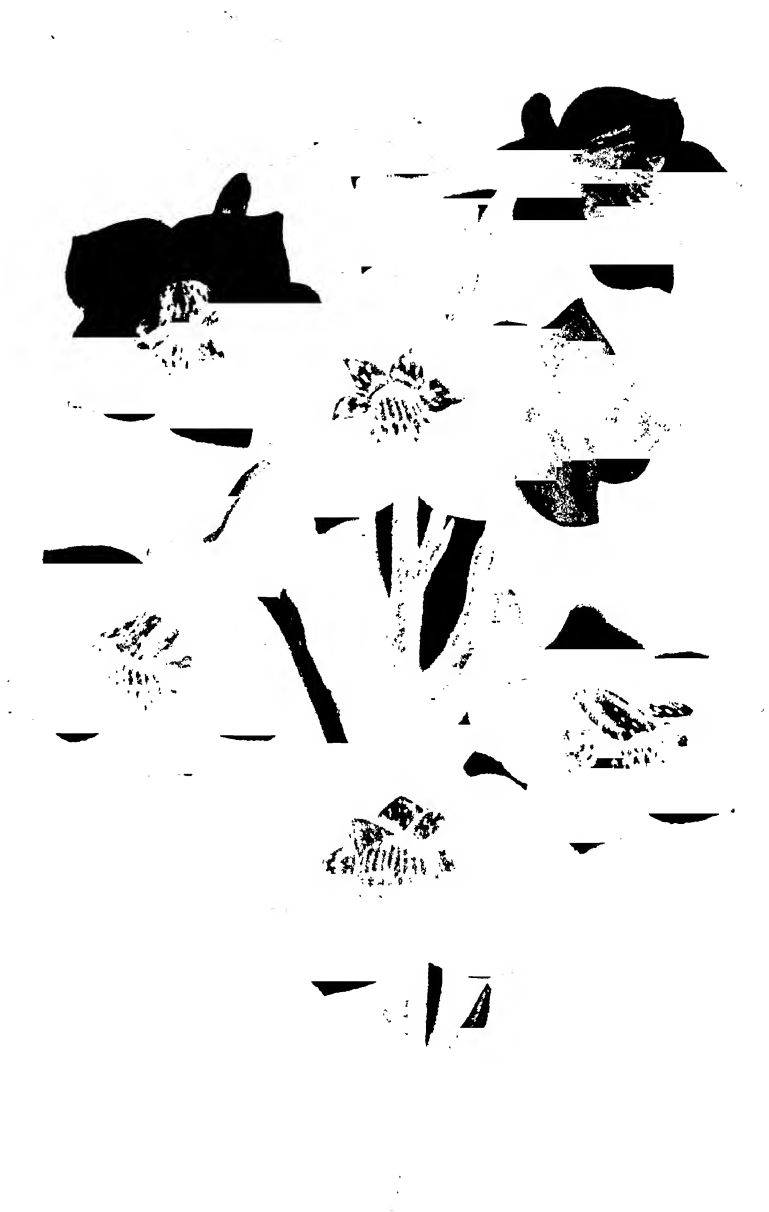
THE BELLADONNA LILY.—Observing in a recent number of the *Floricultural Cabinet* an inquiry made relative to the treatment required to have the beautiful Belladonna Lily bloom freely in the open border, I beg to state that I have had it bloom vigorously for many successive years, growing in the border of a south-aspected wall, planted within a few inches of the wall, in a deep rich sandy loam, on a dry subsoil. The bulbs are about six inches deep. I planted them (one dozen) in a row, at six inches apart, in the year 1840, and they have remained undisturbed ever since, and each year, from 1842, have bloomed vigorously. They do not do well when disturbed by dividing, replanting, etc., but planted in a situation like mine, and there allowed to remain, will realize every expectation.—*A Flower Gardener*.

DESTROYING THE MEALY BUG.—In a late number, a *Regular Subscriber* desires to know the best mode of destroying the mealy bug; I therefore feel much pleasure in answering his query, as the mode I have always adopted has in every instance proved most satisfactory. The remedy is, simply to dust the plant or plants with tobacco snuff, and the mealy bug will in a few minutes cease to exist; as the snuff will not injure any plant, when it is applied in this way, it should not be washed off for some time, as the larvæ of the mealy bug is so very minute, thousands might escape untouched. I have also found it most efficacious in destroying the Aphis, and other noxious insects, on plants which will not bear fumigation. Any plant, however, dusted

with snuff, should not be watered overhead, until it be clean washed, as the snuff when wetted on the leaves has an unsightly appearance.—*James Sharp, Clerk.*

CULTURE OF DAPHNE ODORA.—Observing in your valuable Magazine that one of your numerous subscribers requests to be informed of the best method of cultivating that much-admired plant the *Daphne odora*, and as it is now the blooming season with that deservedly esteemed plant, I should advise your correspondent to pot the plant in peat and sandy loam, or equal portions of peat and loam, with a little sand added, taking care first to drain the pot with plenty of drainage, that the plant may not get what is termed water-logged, which is very injurious to it. Particular care is requisite, too, not to let it get dry, for if it does, it often proves fatal to the scented flowers. I would advise keeping it in a heat of about 55 to 56 degrees, which is quite warm enough. The plant should stand in a window where it can get plenty of air. If your correspondent has not any greenhouse or stove, it is very injurious to plunge it in as a shrub in a conservatory or in any ground, as it keeps it too wet. Care should be taken not to *over-pot* the plant, as it seems to thrive best if rather under-potted. If your correspondent follows this treatment, it will, I have no doubt, be attended with complete success. With such attention we now have a splendid plant, blooming at every young shoot.—*W. Barnes.*

DAHLIAS.—There has also been a great loss in Dahlia roots this season. Now that we are propagating this flower, but little exertion is necessary to make a few more plants than are required for planting of certain varieties that should be grown in pots, for the purpose of producing small sound roots which winter easily, as well as being suitable for travelling to any distance. The following varieties seldom produce sound roots in the ground, and invariably perish before Christmas arrives, viz.:—Annie Salter, Bob, Marvel, Duchess of Sutherland, Bishop of Hereford, and George Villiers. It is as well to have a few pot roots of all the choice kinds, in case of failure in any of the ground roots. These will winter easily anywhere, if excluded from frost. Ground roots should be well dried before starting, and they keep very well in a dry warm cellar. Many persons have no other convenience than placing them under the stage of their greenhouse; this answers very well if they can be kept free from drip from above. By no means put them in a loft, unless it is heated, or the frost will find them out. The ground for growing the plants in having been trenched in the autumn, it will only be necessary to turn it over with the spade before planting, choosing fine weather, when the soil is dry. *Planting cannot safely be commenced before the first week in May*, unless protection is at hand for covering the plants during the night. Many—ourselves among the number—do not plant until the first week in June. Several spits of good rotten manure should be mixed with the soil immediately under the plant. If the soil is well prepared, and a good healthy plant put out, very early planting is unnecessary, to say nothing of the danger of losing the plants by frost. We cannot do better than repeat the following instructions:—“*To grow a good plant during the time it is in the pot, is of far more importance than early planting.* Pot them into four-inch pots, using rich soil; the pots should be drained with coarse partly decomposed leaf-mould, so that in planting out there will be nothing to abstract from the ball of earth. A good start is of great importance; therefore care should be taken that the plant is grown to a fair size, without drawing, during the time it is in the pot; the stouter it is the better, without being tall; and it should not be pot-bound at the time of planting out. Both the roots and the point of the plant should be in a thriving condition, and free from aphides. It may perhaps be unnecessary to state that the plants must be carefully hardened off before they are turned out. If the soil and plants are in a proper state, the first week in June will be a good time for planting out, and, with ordinary care and attention, good plants will be produced in time for the earliest exhibition. A short period will suffice to have plants of a good size; but it should be borne in mind that hours lost in repotting them when in a young state will make a difference of days in the time of blooming, and it is important that this should be clearly understood, that no neglect in the matter may take place. Examine the plants often, to see if any require water; by no means let them become dry so long as they are in pots. Secure them with proper and strong fastenings at the time of planting; water them whenever they require it, and sprinkle the foliage slightly with soft water almost every evening. Tie out the branches, and, as the plants increase in size, secure the side shoots firmly to extru stakes.”—*Midland Florist.*



DELPHINIUM CARDINALIS

The Floricultural Cabinet.

APRIL, 1856.

ILLUSTRATION.

DELPHINIUM CARDINALE (SCARLET-FLOWERED LARKSPUR).

THE generic name *Delphinium* is derived from the Greek *delphin*, signifying a *dolphin*, because the flower-buds, before they are expanded, in shape resemble that fish. Its common English name of *Larkspur* has been given in consequence of the horn-shaped *nectary* of the flower being in form like the spur of a lark's foot. The French call it Knight's Spur and Royal Comfrey; the Italians, Little Spur and King Flower; the English, Lark's Claws, Lark's Heel, Lark's Toe, and Lark's Spur.

Gerard mentions the Larkspur amongst the flowers which were cultivated in the reign of Queen Elizabeth, but he does not seem to have been acquainted with any having *double* flowers. In the early part of the seventeenth century there were one or more varieties having *double* flowers, and which, we are told, were eagerly sought after. It appears to have been about the period when the *florimania* raged to such excess amongst the Dutch, that the first *double* ones were raised, as we find the double-blossomed noticed by Parkinson in 1629, who speaks of the great varieties of colours in these *double*-flowered Larkspurs; and he remarks that the loss of the spur occurred when the blossom was double. From the blue-coloured flowers a good ink has been made, with the addition of a little alum.

That a flower of so much elegance of shape and so beautiful in the variety of its colouring, as the Larkspur is, should have been suffered to pass unnoticed by English poets appears surprising; for the lively and delicate hues of the flower, as blue, rose, violet, white, pink, lilac, striped, and as in the instance of the superb *scarlet* which we figure, all these produce a most beautiful appearance in the flower garden, either grown singly or in masses. A bed of the dwarfier sorts of mixed colours is exceedingly handsome when in bloom.

In floral language, the Larkspur is made the emblem of *lightness*

—an appellation which the graceful airiness with which these flowers are placed on the branches truly justifies.

However handsome each, or all other species and varieties are, the one we figure far surpasses them, both in the symmetry of the plant and in the brilliancy of its *rich scarlet* flowers. The United States Exploring Expeditions met with this rare plant on their overland journeys to California; and Mr. William Lobb discovered it, too, in California, and sent it to Messrs. Veitch, in whose nurseries it bloomed the past summer, as also in the Royal Gardens at Kew. It is a hardy annual, blooming profusely, and will be an universal favourite.

STRIKING CUTTINGS OF STOVE AND GREENHOUSE PLANTS.

BY A PROPAGATOR IN A BELGIAN NURSERY.

WHEN I obtain cuttings at a distance, I find it in most cases essential to success to have the ends which have been cut dipped in puddle, or stuck in a portion of clay, for the crude sap in the cuttings is not raised by endosmose, but by the process of evaporation; care is therefore taken that the surface of the cut does not become dry before being put in the earth, and air get into the lower end of the vessels, for as soon as this takes place only very strong shoots are capable of drawing up moisture, as has been proved by the experiments of various philosophers. The cuttings are therefore stuck in wet sand, clay, etc., if they cannot immediately be put where they are intended to remain, although it is better to avoid this. If, however, they are such as ought to lie a day or two, in order to ensure success, as some *Acacias*, etc., it is in a damp place; and the precaution is taken, if possible, to cut them again before planting. If the long-leaved kinds be stuck in the earth immediately after being taken from the parent plant, the inner bark will become black in from fourteen days to four weeks, and the cuttings will perish.

This phenomenon appears to be in close connection with the form of the leaves of these plants, as those of the *Acacias* have very small stomata. In their stead, on the other side of the leaves of the latter plants, are small dimples, lined with short hairs, which the *Diosmas* possess. Now, as the crude nourishing matter is drawn up through the open wood in its existing state, and received by the cutting, while the spongioles of the roots only imbibe it in a very thin solution, it appears that the above-named plants, on account of the peculiar formation of their leaves, cannot elaborate in any great quantity this gross nourishing matter; and hence arise stagnation of the juices, and the before-mentioned appearances. The good effect of leaving these cuttings lying, and thus interrupting the growing process, and pre-

venting the superabundant rise of the crude nourishing matter, will be apparent; and this is the more probable, as it is usual, for the same reason, to put a piece of mould round the cut.

Cuttings of succulent or fleshy plants also lie for a time before planting, and on no account in a moist atmosphere, that the surface of the cut may be sufficiently dried. They retain so many watery particles in their cellular tissue that, when this is neglected, the face of the cut soon rots. The species of the families *Melocactus*, *Echinocactus*, *Mammillaria*, *Opuntia*, *Cereus*, etc., have an extremely thick bark, and a firm epidermis with very few stomata; on which account the process of evaporation is so slow that they remain alive for a long time, without receiving external nourishment. The dried cuttings of these plants therefore are generally planted in dry earth, and set in a bed or house filled with warm air, and are not watered till they have formed roots from the nourishing matter accumulated in themselves. The roots can scarcely ever penetrate the thick bark, and are produced between the wood and the bark. In some of the *Opuntia* and *Cereus* species, however, they come out of the bark at the side. The other succulent and fleshy plants which form side roots, such as the *Aloe*, *Haworthia*, *Sempervivum*, *Mesembryanthemum*, *Crassula Plumieria*, and its congeners, as well as all the Cacti, are watered as soon as they are planted. Lastly, plants with milky juice also require similar treatment, as they are equally liable to damp off.

As soon as a part of one of these plants is cut off, the milky juice exudes in great quantities, covers the whole surface of the cut, and hardens like caoutchouc, by which the vessels are all stopped up, and the ascension of the moisture prevented. Cuttings of *Ficus* and the dry roots of *Euphorbia* are put in water, where they remain twenty-four hours before they are put in the earth. The same end is also attained when they are put in dry sand immediately after being cut, and afterwards the sand and the milky juice cleared away. Only the succulent and very milky *Euphorbias* must lie for some time.

Although it is proved by the above that the cutting receives as much moisture through the face of the cut as it loses in ordinary circumstances by evaporation, yet no sooner is it placed in very dry air, or in a draught, or exposed to the sun's rays, than a disproportion takes place between them. When this is the case, more watery particles are lost through evaporation than are raised in the body of the wood, which is very easily perceived in fleshy-leaved plants. On this account, hotbeds and houses prepared on purpose for propagating are used, in which the outer air is excluded, a moist temperature maintained, and, in very warm sunshine, a dense shade is given. Bell-glasses are placed over the more difficult-rooting cuttings, to protect them from all external influences which might destroy them before they made roots. The most proper form of bell-glass is that which gradually tapers from the base to the top, as from glasses of this shape the moisture, which adheres to the inside in the form of drops, runs gradually off without the dropping so injurious to cuttings. This dis-

advantage is found in all other forms more or less, such as those that are round at the top, or cylindrical, with the top bluntly truncated; and also in beer-glasses, which are often applied to this purpose. The most unsuitable glasses, which are, however, much used, are those small at the base, and swelling out like a globe.

The enclosed air under the glasses will soon lose its oxygen, through the respiring process of the plants within, and also be vitiated by other exhalations; and if it is not changed, it generates mould, and the cuttings lose their fresh appearance. For this reason, the glasses, if possible, should be daily ventilated and wiped; or, what is still better, as it will entirely renew the air, dipped in a vessel of cold water, and well shaken, so that too many drops of water may not remain on the glass, although they are not so injurious to the cuttings. In an extensive establishment, this operation requires much time, and therefore round holes, of about half an inch to three-quarters of an inch in diameter, are made at the top of the glasses; a cork is put into it, and taken out or closed as is required, and these will prove very serviceable, if the pans stand on a warm platform in the houses or beds prepared for the purpose.

The cuttings themselves should not be stuck too close together, and all the leaves should be left on that are above the surface of the sand, soil, etc., which are essential for elaborating the absorbed and deposited nourishment; removing the lower leaves above the part not inserted has an injurious effect upon the cuttings of many kinds of plants.

(To be continued.)

THE TEMPERATURE OF HOTHOUSES.

BY WILLIAM WILLIAMS, ESQ., OF LIVERPOOL.

SOME idea may be formed of the prodigiously increased drain upon the functions of a plant, arising from an increase of dryness in the air, from the following consideration. If we suppose the amount of its perspiration, in a given time, to be 57 grains, the temperature of the air being 75°, and the dew-point 70°, or the saturation of the air being 84.9°, the amount would be increased to 120 grains in the same time, if the dew-point were to remain stationary, and the temperature were to rise to 80°; or, in other words, if the saturation of the air were to fall to 72.6°.

Besides this power of transpiration, the leaves of vegetables exercise also an absorbent function, which must be no less disarranged by any deficiency of moisture. Some plants derive the greatest portion of their nutriment from the vaporous atmosphere, and all are more or less dependent upon the same source. The *Nepenthes distillatoria* lays up a store of water in the cup formed at the end of its leaves, which is probably secreted from the air, and applied to the exigencies

of the plant when exposed to drought; and the quantity which is known to vary in the hothouse is, no doubt, connected with the state of moisture of the atmosphere.

These considerations must be sufficient, I imagine, to place in a strong light the necessity of a strict attention to the atmosphere of vapour in our artificial climates, and to enforce as absolute an imitation as possible of the example of nature. The means of effecting this is the next object of our inquiry.

Tropical plants require to be watered at the root with great caution, and it is impossible that a sufficient supply of moisture can be kept up from this source alone. There can, however, be no difficulty in keeping the floor of the house and flues constantly wet, and an atmosphere of great elasticity may thus be maintained in a way perfectly analogous to natural process. Where steam is employed as the means of communicating heat, an occasional injection of it into the air may also be had recourse to; but this method would require much attention on the part of the superintendent, whereas the first cannot easily be carried to excess.

It is true that damp air, or floating moisture of long continuance, would also be detrimental to the health of the plants, for it is absolutely necessary that the process of transpiration should proceed; but there is no danger that the high temperature of the hothouse should ever attain the point of saturation by spontaneous evaporation. The temperature of the external air will always keep down the force of the vapour; for as in the natural atmosphere the dew-point at the surface of the earth is regulated by the cold of the upper regions, so in a house the point of deposition is governed by the temperature of the glass with which it is in contact. In a well-ventilated hothouse, by watering the floor in summer, we may bring the dew-point within four or five degrees of the temperature of the air, and the glass will be perfectly free from moisture; by closing the ventilators, we shall probably raise the heat ten or fifteen degrees, but the degree of saturation will remain nearly the same, and a copious dew will quickly form upon the glass, and will shortly run down in streams. A process of distillation is thus established, which prevents the vapour from attaining the full elasticity of the temperature.

The action is beneficial within certain limits, and at particular seasons of the year; but when the external air is very cold, or radiation proceeds very rapidly, it may become excessive and prejudicial. It is a well-known fact, but one which, I believe, has never yet been properly explained, that by attempting to keep up in a hothouse the same degree of heat at night as during the day, the plants become scorched. From what has been premised, it will be evident that this is owing to the low temperature of the glass, and the consequent low dew-point in the house, which occasions a degree of dryness which quickly exhausts the juices.

Much of this evil might be prevented by such simple and cheap means as an external covering of mats or canvas.

The heat of the glass of a hothouse at night does not probably exceed the mean of the external and internal air; and taking these at 80° and 40° , 20° of dryness are kept up in the interior, or a degree of saturation not exceeding 528° . To this, in a clear night, we may add at least 6° for the effects of radiation, to which the glass is particularly exposed, which would reduce the saturation to 434° , and this is a degree of drought which must be nearly destructive. It will be allowed that the case which I have selected is by no means extreme, and it is one which is liable to occur even in the summer months. Now, by an external covering of mats, etc., the effects of radiation would be at once annihilated, and a thin stratum of air would be kept in contact with the glass, which would become warmed, and consequently tend to prevent the dissipation of the heat. But no means would of course be so effective as double glass, including a stratum of air; indeed, such a precaution in winter seems almost essential to any great degree of perfection in this branch of horticulture. When it is considered that a temperature at night of 20° is no very unfrequent occurrence in this country, the saturation of the air may, upon such occasions, fall to 120° , and such an evil can only at present be guarded against by diminishing the interior heat in proportion.

By materially lowering the temperature, we communicate a check which is totally inconsistent with the welfare of tropical vegetation. The chill which is instantaneously communicated to the glass by a fall of rain or snow, and the consequent evaporation from its surface, must also precipitate the internal vapour, and dry the included air to a very considerable amount, and the effect should be closely watched. I do not conceive that the diminution of light which would be occasioned by the double panes, would be sufficient to occasion any serious objection to the plan. The difference would not probably amount to as much as that between hothouses with wooden rafters and lights, and those constructed with curvilinear iron bars, two of which I had erected in my garden three years ago. It might also possibly occasion a greater expansion of the foliage; for it is known that, in houses with a northern aspect, the leaves grow to a larger size than in houses which front the south. Nature thus makes an effort to counteract the deficiency of light, by increasing the surface upon which it is destined to act.

The present general method of ventilating hothouses is also objectionable, upon the same principles which I have been endeavouring to explain. A communication is at once opened with the external air, while the hot and vaporous atmosphere is allowed to escape at the roof; the consequence is, that the dry external air rushes in with considerable velocity, and becoming heated in its course, rapidly abstracts the moisture from the pots and foliage. This is the more

dangerous, inasmuch as it acts with a rapidity proportioned in a very high degree to its motion. I would suggest, as a matter of easy experiment, whether great benefit might not arise from warming the air to a certain extent, and making it traverse a wet surface before it is allowed to enter the house.

There is one practice universally adopted by gardeners, which is confirmatory of these theoretical speculations; namely, that of planting tender cuttings of plants in a hotbed, and covering them with a double glass. Experience has shown them that many kinds will not succeed under any other treatment. The end of this is obviously to preserve a saturated atmosphere.

The effect of keeping the floor of the hothouse continually wet has been often tried, and it has been found that the plants have grown with unprecedented vigour; indeed, their luxuriance must strike the most superficial observer.

To the human feelings, the impression of an atmosphere so saturated with moisture is very different from one heated to the same degree without this precaution; and any one coming out of a house heated in the common way, into one well charged with vapour, cannot fail to be struck with the difference. Those who are used to hot climates, have declared that the feel and smell of the latter exactly assimilate to those of the tropical regions.

But there is a danger attending the very success of this experiment, which cannot be too carefully guarded against. The trial has been made in the summer months, when the temperature of the external air has not been low, nor the change from day to night very great. In proportion to the luxuriance of the vegetation will be the danger of any sudden check; and it is much to be feared that, unless proper precautions are adopted, the cold long nights of winter may produce irreparable mischief.

I am aware that a great objection attaches to my plan of the double glass, on account of the expense; but I think that this may appear greater at first sight than it may afterwards be found to be in practice. It is, however, at all events, I submit, a point worthy of determination; and if the suggestion should be found to be effective, the lights of many frames which are not commonly in use in winter might, without much trouble, be fitted to slide over the hothouse, during the severe season; and in the spring, when they are wanted for other purposes, their places might be supplied at night by mats or canvas.

The principles which I have been endeavouring to illustrate should be, doubtless, extended to the pinery and the melon frame, in the latter of which a saturated atmosphere might be maintained by shallow pans of water. An increase in the size of the fruit might be anticipated from this treatment, without that loss of flavour which would attend the communication of water to the roots of the plants.

I have but few additional observations to offer upon the artificial

climate of a greenhouse. The remarks which have been made upon the atmosphere of the hothouse are applicable to it, though not to the same extent. The plants which are subject to this culture seldom require an artificial temperature greater than 45° or 50° , and few of them would receive injury from a temperature so low as 35° . When in the house, they are effectually sheltered from the effects of direct radiation, which cannot take place through glass; but the glass itself radiates very freely, and thus communicates a chill to the air, which might effectually be prevented by rolling mats. With this precaution, fire would be rarely wanted in a good situation to communicate warmth; but in this damp climate it may be required to dissipate moisture. The state of the air should be as carefully watched with this view, as where a high temperature is necessary to guard against the contrary extreme. Free transpiration, as I have before remarked, is necessary to the healthy progress of vegetation; and when any mouldiness or damp appears upon the plants, the temperature of the air should be moderately raised, and free ventilation allowed. When the pots, in the proper season, are removed into the open air, it would contribute greatly to their health, and preserve them from the effects of too great evaporation, to imbed them well in moss or litter; as a substitute for this precaution, the plants are generally exposed to a northern or eastern aspect, where the influence of the sun but rarely reaches them, but which would be very beneficial if their roots were properly protected. The advantage of such a protection may be seen when the pots are plunged into the soil, a method which communicates the greatest luxuriance to the plants, but unfits them to resume their winter stations.

When a greenhouse is made use of, as it often is after the removal of the pots, to force the vine, the same precautions should be attended to as in the management of the hothouse, and the elasticity of the vapour should be maintained by wetting the floor; but after a certain period, a great degree of dryness should be allowed to prevail, to enable the tree to ripen its wood, and form the winter productions for its buds. In this its treatment differs from that of the tropical plants, which require no such change, and to which, on the contrary, it would be highly detrimental.

TREATMENT OF CAMPANULA PYRAMIDALIS.

BY MR. JAMES SMITH, OF CLARE CASTLE GARDENS.

THIS most admirable flowering plant does not obtain that degree of prominence to which it is so highly entitled, for when grown as it can be, no plant that I know is more ornamental. I have been very successful with it, and send a detail of my treatment.

My method of growing this plant is, to sow the seed in March on a slight hotbed; when they have made two or three leaves, pot

them off into three-inch pots, and place them in a close frame till they have made growth, then harden them off by degrees, and they will have filled their pots by May. Prepare a good rich piece of ground in an airy situation, and plant them out eighteen inches apart; let them remain till the following March, by which time they will have made good growth; take them up with good balls of earth adhering to them, and pot them in fifteen-inch pots, using the following compost: equal parts of well-decomposed horsedung, turfy loam, and leaf-mould, with a portion of silver sand, and good drainage. Place them in a frame or pit, which keep closed until they have made growth, shortly after which they will open their flower-stems; as they advance, keep them as close to the glass as possible, admitting a large portion of air through the day. As the spring advances, frequently syringe them, closing the pit with a humid atmosphere in the afternoon. When their flower-stems have attained too great a height for the pit or frame, remove them to the greenhouse or conservatory, placing them where they can receive a large portion of air.

By giving this old plant the treatment here detailed, it will produce flower-stems measuring from ten to twelve feet high. I am not acquainted with any plant more easy of being cultivated to perfection, or more useful for halls, verandahs, etc., when thus cultivated, as, from the substance of its flowers, it is capable of keeping in flower much longer, and can endure many situations which the majority of flowers cannot. I have seen it trained to fan-shaped frames, and in the pleasant summer months, when fire is not required, placed in front of the grate, and hence, as I presume, its name, Chimney Campanula. A friend of mine informs me that he could not flower the plant to his satisfaction until he turned it out of the pot into some good soil for a few months early in the season. With one in particular he had been highly successful; when it showed blooming stems, he took it up and put it in a large pot; it produced eleven fine spikes of flowers, and a more splendid plant could not be desired.

TREATMENT OF THE CHRYSANTHEMUM.

BY A NOBLEMAN'S FLOWER GARDENER IN HERTS.

SEVERAL years ago I turned out a fine collection of Chrysanthemums against a south-west aspected brick wall, where they have each year bloomed beautifully. During the last summer I visited a nursery garden near London, and observed, on a similar aspected border, a collection of Chrysanthemums had been planted out about four feet apart (a double row in an alternate manner), and the shoots were then laid into pots sunk in the border up to the rim, which made a complete surface of dwarf plants about six inches high. On

inquiry I found that, when the plants pushed shoots in spring, only as many were retained as were required for layering, all others were pulled clean off: this furnished a nursery supply of dwarf plants for sale.

On arriving home, I had some of the strongest shoots upon my plants grown against the wall layered down into two rows of pots running parallel with the wall, and others into the border between the pots: in the rows there were, first a layer in a pot, and next in the border, etc. The pots were plunged up to the rims. When the layers began to push I had the leads pinched off, to induce the production of laterals, each being left about six inches high; this was done about the middle of May. The layers pushed side-shoots, which I allowed the uppermost row to grow to half a yard high, when I had each shoot stopped. The front row I stopped when they had got about eight inches high. Both rows were, by September 14th, beautiful bushy plants, and very liberally set with flower-buds, and they very amply repaid for the attention by a *fine bloom*. Having thus secured a supply of well-set blooming buds, I then severed the layers which were in pots from the parent plant, and then took the pot plants out of the border for blooming in the greenhouse, and allowed those which were layered into the border to remain for blooming in their situations, and thus they afforded me a fine slope of bloom, from the tops of the plants trained against the wall down to the outer edge of the front row of dwarf plants, which extended into the border seven feet from the bottom of the wall. The plants have been attended to with water in dry weather, but this duty was not often required that season. The soil of the border was *very rich*, a free supply of well-rotted manure had for years been given every spring.

This method of obtaining dwarf plants for the greenhouse is readily accomplished, requiring little attention during the summer besides stopping the leading shoots. It is far preferable to raising them in pots after the usual method; the plants are not liable to be injured by lack of water, etc., and they are much more robust in growth, and the flowers, I am persuaded, will be much larger.

By this mode of obtaining dwarf plants for the open border, a circular bed may be provided so as regularly to incline from the centre to the extent of the circle, or a sloping bank be covered with dwarf plants, from six inches high, in a profusion of bloom. Such would be showy and handsome objects, with their varied mingling colours, throughout autumn, and be especially admirable if within view from a sitting-room. It is my intention to fill up a bed or more, thus situated, with a portion of the plants I have raised in pots this season.

I intend to retain all the layered plants which are to bloom in the border in front of the wall, from which my supply of layered plants may be obtained next year.

SUCCESSFUL CULTURE OF THE NEAPOLITAN VIOLET.

BY MR. JOHN COX, FOREMAN IN A LONDON NURSERY.

I FIND that this Violet succeeds best when grown in equal parts of loam and sandy peat, and in a rough state. Of this compost, some time from the middle of April to the end, the bed is formed, and the surface very firmly trodden, and in it the runners are planted in rows one foot apart, and six inches in the rows. As the runners begin to spread they are cut in, and much of the success depends on the plants being closely cut in until they are taken up for potting.

Stirring up the soil between the plants, and due attention to water are essential during the summer, and in very hot weather mulching is very beneficial, keeping the roots cool. Shading the bed, too, greatly contributes to promote a profuse and vigorous bloom, as well as preventing the plants being attacked by the red spider, to which, when exposed to hot sun, they are very liable. I prefer their being grown in pots, for they flower not only as large, but more profusely than when grown in the soil of a frame-bed; in the latter situation the plants run too much into stem, foliage, etc. The pots being nicely mossed and in profuse bloom (having had 100 expanded at once), are pretty for a room. The flowers, too, are more readily gathered when in pots.

The plants are taken up at the end of July, or early in August; they are potted in six or eight inch pots, and are placed upon ashes, with a layer of salt underneath, to prevent worms getting into the pots. The plants must not be allowed to flag for want of water. To bloom them well, a little bottom heat is essential; I half plunge the pots. All air possible is admitted before noon, and shut up early enough to have a little sun heat. A few pots taken in weekly will give a plentiful supply, and readily obtained, from October to April, when we expect a supply from plants in the open air. I consider shading in hot weather highly beneficial.

There are several kinds of this class of Violets now grown. The one sold as the Tree Violet, which is known as the Perpetual and Chinese, is the most profuse bloomer, and is an excellent forcer. It will produce flowers from September to May; and being trained to become erect, with a stem eight or more inches high, forms an interesting object. The flowers are of a deep violet-blue, and very double. The Russian Violet (double variety) has flowers of a similar colour; it blooms up to the middle of June. The flowers are of a similar colour to the former, but not near so fragrant. This is the kind usually sold in the flower markets, and to give a stronger perfume, flowers of the former are mixed with the latter.

The Neapolitan Violets. Of these there are the double white and double blue; they are more tender than the previous-mentioned kinds. The white is very fragrant, and the pure white intermingled with the violet and blue produces a pretty effect.

A FEW REMARKS ON FORCING CROCUSES.

BY A PROVIDORE FOR COVENT-GARDEN, LONDON.

It is a common complaint that "the Crocus bulbs purchased last season did not flower; the leaves grew very rapidly and long, but we had not a single flower." The reason of this is obvious, it is simply this—they were put into too high a temperature. Crocuses will bear but little heat, and if you wish to grow them as you would like them to be (I am now speaking of in-door culture), I would recommend the following treatment, or something near it. Plant as early as you can get them (which will be in September, do not defer it later than October), in a pot, saucer, beehive, hedgehog, or anything you please, in moss, sand, or mould: give them a good watering after planting, and afterwards keep the mould, etc., a little damp until they are in a strong growing state, when they will require a constant supply of water. Keep them where there is no fire or artificial heat, such as on a staircase or room window, giving them all the light and air possible. About the middle of January you may, if desirable, put them into quarters a little warmer, but in a window, so that they have plenty of light, and no doubt the result will be a fine display of bloom.

THE CAUSE OF DOUBLE FLOWERS.

BY MR. CHARLES MOORE, WHITBY HALL, DEWSBURY, YORKSHIRE.

CONVERSING with a friend, a few days back, on the most certain way to obtain the greatest quantity of double Stocks from seed, we were led to speak of the origin of double flowers in general, and that, generally speaking, the cause was little understood. The result of our conversation induced my friend to transmit me the following remarks upon the subject, which, after reading, I forward for insertion in the *Cabinet*, thinking, when the cause is generally understood, attention will be additionally given to it in a practical manner.

A highly concentrated state of the sap in plants induces the production of flowers, and before the petals, pistil, and stamens can be formed, it must be perfectly elaborated; thus perfected, they have a higher state of existence than the leaves, which are the lowest, stem and petals next, after which the pistil and stamens, and, finally, the fruit. This perfect elaboration can only be obtained by a due degree of light and height, etc.

When, however, double flowers are produced, it is generally by a change of the higher parts of the existence, of stamens and pistils into the lower state of petals; and the more the plant is checked by a poorer soil, and a sparing supply of water for a period, the more likely, by giving luxuriant food and treatment afterwards, to bring

back the pistil and stamens to a grosser and lower stage of existence to petals, and thus produce double flowers. The greater the check given, the more powerful will be the effect of after luxuriance when shifted into a rich soil, placed in due heat, properly supplied with water and every requisite attention; with the greater vigour there will be a flow of crude sap, and the flower is not only then produced larger, but the crude sap has a tendency to lower the state of existence, and the stamens and pistils being higher in the scale of existence, are reduced to the more inferior condition of petals. Sometimes the scale of existence is so far reduced, that what had been originally the nucleus of a branch, but elevated by elaboration acting on the vital energy into the state of petals, stamens, and pistils, is not only reduced to petals and become double, but will shoot again into a branch, as we have had instances with Brown's Superbe, and other Roses. The double *Lychnis diurna* has the stamens changed into red petals, and the pistil into green leaves, and the quantity of each greatly increased. In the *Rhododendron*, the flowers are produced from the terminal bud of the shoot; if the summer and autumn have been warm, the bud swells larger, and we have a branch of flowers instead of a branch of leaves the ensuing spring; but it is always difficult to say, till the bud is evolved, whether we shall have leaves or flowers. In raising double or full flowers from seed therefore, we should carefully guide our attempts by experience; in procuring the seed, we must get it from the *most double flowers we can*, as the progeny always bears more or less resemblance to the parent. In the *Dahlia*, the flower is not, strictly speaking, full; it belongs to the compound class, in which a great number of florets are arranged on one common receptacle; in single Dahlias, and other flowers of this class, the ray or outer row of florets has the petals fully evolved and coloured; in the florets of the centre or disk, the petal is only in the state of a small tube, inside of which the stamens are situated. Rich cultivation forces these tubes to assume the state of coloured petals; sometimes tubular, as in the Quilled Dahlias, and sometimes floculose or flattened, as in others; sometimes the stamens are changed into petals, sometimes they are abortive, but generally both these and the pistillum are unchanged, and hence there is little difficulty in getting seed from Dahlias. Plants that are full of double flowers at one time, when the plant is vigorous, will change and come more single when checked by bad weather, or when the plant begins to ripen and get woody.

To return to the raising of seedling double flowers. Roses, Pinks, Carnations, and *Ranunculus* change the stamens only into petals; sometimes these are only partially so in very full flowers, and seed is comparatively easy to be obtained from them: we should, as before observed, select from the fullest and best flowers. In the *Anemone*, the pistils are changed into petals, the stamens unchanged; seed of these can therefore only be obtained from flowers not

perfectly full, or by impregnating flowers nearly single, with a tendency only to fulness, with the anthers of full flowers. In Stocks and Wallflowers, both stamens and pistil are changed into petals; seed cannot therefore be had from full flowers in these sorts, and the only resource we have is to save seed from those in which a tendency to fulness has commenced, by having a petal or two more than usual. In growing Stocks from seed, they will be more likely to be double if the plants are checked first by a deficiency of nourishment, whether of water or manure, and afterwards excited to luxuriance by a plentiful supply; and the greater the change, the greater the likelihood of success. Old seed, or seed dried, gives a check; we have had instances of old neglected seed, which had been reckoned very inferior when the seeds were fresh and new, come almost every plant double, when a little had been left over and sold when old. The seed for raising double flowers of any sort can *hardly be too old*, if it will grow at all; and the weak plants, first stunted and then luxuriated, will be found most successful; the seed should be sown on heat, and the weak plants *most cared* for. After flowers have once been produced double or full, the habit of coming double will be retained, if kept so by rich cultivation. When any variety has begun to sport, the plants should be raised off those individuals which have not yet sported, as the sporting habit might become fixed; and this should be carefully guarded against, by propagating from those roots that show the fullest flowers. The double China Asters, Feverfew, Rockets, Daisies, etc., come double in the same way as Dahlias. The double Snapdragon is similar to the Stock. Campanula, Cistus, the Thorn, and most other double flowers, are similar to the Rose. Thus, by attention, have many of our English plants been induced to produce double flowers, and so, no doubt, would be the result with others, both domestic and foreign, if attention were duly paid to the subject.

BUDDING AND GRAFTING THE RHODODENDRON, ROSE, ETC.

BY THE FOREMAN OF A LONDON NURSERY.

OBSERVING in a late number of the *Cabinet* some remarks on increasing the Rhododendron and similar shrubs, as well as Roses, etc., and now being the season for operation, has led me to forward the following observations on the process of budding and grafting.

The success of budding depends greatly on the state of the stock; if this is growing vigorously, and the bark flies up quite freely on the introduction of the budding-knife, the budding will hardly fail of success; if the young shoots of the stock are nearly ripened to the top, the bark is in the way of beginning to fasten to the wood; or if the shoots are small and weak, and the plant unhealthy, the bark most

likely has not risen at all; in either case, the bark will not rise freely from the incision with the handle of the knife, the sap is not circulating freely, and it is in vain to attempt introducing a bud by forcing up the bark. The bud should be chosen from a vigorous young plant, the shoots from old trees have not so much sap or vitality; and the bud should be chosen when the bark is beginning to assume a ripe colour: if too ripe, it does not rise so freely from the bark, and vitality is beginning to get dormant; if too green, it is apt to perish before uniting to the stock. The buds should be tied as soon as possible after the operation, to exclude air from the wounds; but if the stocks are vigorous, drawing very tight is not of so much consequence here as in grafting. When buds are nearly ripe, in which state they succeed best, the piece of wood which unites the bud to the branch is apt to break off far in, and leave the appearance of a hollow eye. Some operators attach great importance to this, and say that, though the bark live and unite, the bud will not push in the spring; but I have frequently inserted buds with very hollow eyes, and marked them for the purpose of experiment, and they always pushed as well as the others: the sap of the tree should soon fill this hollow. Much of the success also depends on having the edges of all the cuts smooth, and the operation done as speedily as possible; if the edges of the wound are rough, the vessels of the liber, where the living principle is most active, are bruised and lacerated; and, if long exposed to the air, they begin to spoil. The common method of extracting buds is to cut away a piece of the shoot, and afterwards extract the wood; but this destroys the very sharp edge of the knife, and the cut will invariably be found more or less rough. The bark should be cut all round the bud to the shape and size wanted, and the thumb pressed against the cut portion, at the side of the bud; if the shoot is growing and healthy, the bud will separate freely, and there will be no laceration of the edge; the bark will be cut as smooth as a piece of cheese, and the edge of the knife will be kept sharp, as no wood needs to be cut through. As far as mechanical operation is concerned, this cutting smooth is of far more importance than any method of inserting the bud; if the bud does not squeeze freely off the branch with the side of the thumb, it is very doubtful of succeeding.

Much of the success of grafting depends on keeping the alburnum, or newest layers of wood and liber, or inner bark of the stock and graft, closely united and pressed together, till a complete union takes place; it is in the bark and soft wood that the development is most rapid, though all the cellular tissue is capable of uniting. For this purpose they should be as near of a size as possible, and the slice from each should be very small, allowing as much of the alburnum as possible to remain on both; it is there where the sap rises; and if the slice is made, either in graft or stock, through to the heart-wood, the ascent of the sap is stopped, except by the edges. The graft should not be put on till the stock has commenced to grow, when the new layer of inner bark is about to be formed, and the efforts to unite

commence; both stock and graft are apt to dry and shrink, or cling, and thus part from one another, if done long before the commencement of growth. The grafts should be taken off before they begin to spring, and their ends inserted in damp earth; as they will cling more if taken off after they have begun to swell by growth, and thus part more from the stock. Also, if the living principle is set in motion by the commencement of growth before taking off, and then checked by taking off, or by cold weather succeeding warm, the graft will perish more readily than if the growth of the stock had commenced first, and the graft been fed from the union of the tree; for this purpose, the grafts of deciduous plants should be taken off before they begin to swell in the bud; as, if growth has commenced, it will proceed further in the graft, though off the plant, and be hurtful. Neither seeds nor cuttings will perish near so readily when in a dormant state, as when life is set in motion, and then checked. To prevent clinging or shrinking, choose well-ripened wood. The young shoots of young trees, or the bottom growths of old trees, are generally more vigorous than the extremities of old trees, vitality is most active in these young shoots; but in grafts that have the young wood soft and apt to cling, choose strong, vigorous, two or three years old wood. Many grafts that succeed with difficulty, if the grafts are retarded, the old wood chosen, and the stock allowed to spring before grafting, will succeed in this way, when they will do so in no other. Much of the success, however, depends on the warmth of the weather keeping the sap flowing. Moist warm weather is good, but heat is the principal requisite, the stocks being already established; and wet weather is very often cold in spring. The mechanical part of the operation depends on the slopes of the cuts being made to fit one another exactly, which is easiest done by choosing the slopes of the graft to fit those of the stock as nearly as possible, by thin slices being taken off each; by using a thin-backed, broad-bladed, sharp knife; and by drawing the hand straight without twisting, when making the cut. The graft and stock must be hard pressed together, without shifting, in the tying, which is best done by a smart hitch or pull, every time the wet bast ligature passes the graft in the act of tying, and not by continued pulling. The above remarks apply chiefly to whip-grafting, which is the most common. Crown-grafting is that most practised for old trees; and the necessity to take off the grafts, and allow the stocks to push, is here absolute, as the operation cannot be performed properly till the bark rises freely from the stock. When the bark rises freely, success is very certain in this way, if the grafts are strong and not sprung, as the flow of sap causes union to take place speedily, and the strong bark keeps the graft in its place. If the bark and wood of the stock do not separate freely, it is in vain to attempt grafting in this way. Grafting soft evergreens, as Rhododendrons, Daphnes, etc., is best done by waiting till growth has fairly commenced, either the first, pushing in spring, or the second, in summer, and inserting the graft in the manner of a bud, by opening

the bark of the stock. The grafts of these must not be taken off till needed, as they are not dormant, like deciduous grafts, and more apt to perish. The bark will not rise till growth has fairly commenced, and dull, cloudy, moist, warm weather suits best; if dry and sunny, they should be shaded. With evergreens a few leaves are left on the top of the stock to draw up the sap, and to carry on the growth; it is useful in the grafting of all soft evergreens.

Increase by layers is often adopted with evergreens, and is generally successful where circumstances admit of it. Take care to tongue the layer close under a side bud, and keep the tongue quite open, and the part above the tongue to be made as perpendicular as possible, the two being at right angles, which causes the sap to accumulate, and so form a swelling of cellular matter at the bottom of the tongue, from which the roots proceed. A little fine sand put round the cut prevents the wound corroding in heavy soils, and by pressing on the bark, as in cuttings, promotes the rooting. The layer must be kept steady by a peg, but where the shoot is long, and likely to be shaken by wind, etc., that must have a support to be tied to.

ROCKWORK AND ROCK PLANTS.

BY F. E., COUNTY OF DURHAM.

As I have taken a good deal of interest and have had some experience in forming rock or stone work, and cultivating suitable plants for it, I comply with the request of Georgiana Elizabeth, in the February number of the *Floricultural Cabinet*, to supply some account thereof; but her question is very vaguely put, neither stating what space is to be occupied, or what kind of rockwork is desired, and therefore I may enter into some details which may be considered superfluous, for the chance of supplying what may be acceptable.

Mrs. Loudon, in page 257 of her very useful work, "The Ladies' Companion to the Flower Garden," says, "There are two sorts of rockwork, that which is intended to imitate natural rocks, and which must be formed of large detached pieces of real rocks, and that which is meant merely as a nidus for the cultivation of rock plants." Now the first of these is very difficult to obtain, and very expensive to remove any distance. The second can only be employed as a receptacle for plants, in the same way that baskets and other elevations are used, and must be very limited in size. I consider a third sort, and the most generally seen, to be composed of comparatively small pieces of lime, or other stony substances, arranged *grotto*-like, on a larger or smaller space, as may be required.

I think any sort of rockwork placed on a "flat lawn" objectionable, and quite out of keeping with *turf*, the beauty of which depends on its softness, smoothness, perfect neatness, and everything opposed to opaque and rough stones; indeed, so incongruous does such a union

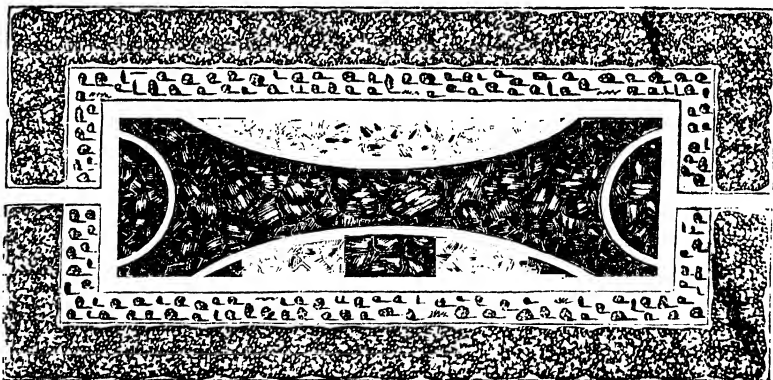
appear to me, that I would never place turf at the foot of *real rocks*, as is often done.

The intent of the turf, whether large or small, should be lengthened as much as possible to the eye which views it; any beds placed on it should either be level and strictly defined; or if baskets or other elevated stands are used, they should have slight pedestals, to allow the smooth turf to spread *under* their broader surfaces. I like to fancy, if the beds were raised by a magic power in the air, they should leave a verdant surface beneath.

If a lawn is very large, it will probably have recesses, or assume a wilder character towards the ends, paths to shrubberies, etc., in which rockwork might be introduced, without detriment to the central verdant harmony; but for the trim, smooth, velvety surface, on which the most dainty foot might rejoice in a satin slipper, I say ye nay!

Much has been lately said about rockwork banks for Ferns, which might advantageously be used wherever a good slope could be made; it would be most suitable as a boundary to any piece of ground. Roots and stumps of trees are quite as good, if not better than stones, for this purpose. All plants delight in decaying wood, which their roots soon penetrate into, through any soil in which they may be planted, and with which it soon amalgamates.

If a good or rather rare collection of rock plants is wanted, it is best to apply to the eminent nurserymen, who are constantly adding to their collections. My own rockery (of which the ground plan and sketch are nere delineated) is chiefly filled with *wild* plants. It was



intended the large kinds should occupy the top, and the smaller and choicer the lower recesses; but finding the former quite overgrew and destroyed the latter, and that the situation was unfavourable to tender things, it remains in a wild but "much-admired disorder," bearing in mind it was formed to occupy a piece of waste land (an old pond filled up), surrounded by trees which did not favour any

other disposition. On it are all the large hardy Ferns, which grow most luxuriantly; many kinds of the Cranesbill, or Wild Geranium, including *pratense*, *sylvanum*, *pictum*, *sylvatica*, *phacum*, *lucidum*, *Robertianum* (Herb Robert) pink and *white* (rare), and many others, whose distinctive names I am ignorant of. The variegated Nettle (both purple and white flowered) is a valuable plant to cover space; it flowers early and long, and continues in foliage all winter. The yellow Nettle from Clifton and Malvern is a pretty plant; also *Sedums*, *Saxifrages*, and *Cistuses*. For *creepers*, the Periwinkles and *Lysimachia* (Moneywort); all the Primroses, single and double, and others of the *Primula* tribe (for ever honoured and loved be *Scotica*, flowering in February); single and double Wood Anemone, the latter called in Ireland Pearl-pins; *Myosotis*, early and late, blue and *pure white*. The wild *Oxalis* (or Wood Sorrel) makes a beautiful edging round the stones, like a fringe, and spreads in that way without overpowering. I have many scarce wild plants, which can only be obtained by time, and from their respective localities.

Amongst cultivated *dwarf* plants, I would particularly recommend a most beautiful but much neglected plant, the *Linum flavum*; it is not very hardy, but has lived out several winters: it is good to keep a young stock in reserve, by cuttings. The *Veronica saxatile*, the variegated and common *Arabis*, both purple and white; the dwarf *Epilobium*; *Claytonias*, white and pink; the *Coronilla coronaria*, a lovely creeping plant, flowers for a length of time; and the Shamrock is interesting and attractive, from its brown foliage,—I have found it much sought for. These are all perennials, and improve each year, barring accidents.

If a *dust* rockery is intended, the half-hardy tribes present an endless list of blushing honours, amongst which the *Mesembryanthemums* hold a distinguished place. So many others crowd their pretensions, it is almost impossible to name them.

I have only to add, all rockwork should have a good *solid foundation of paving-stones*, bricks, or any other available rubbish, to prevent it sinking.

CULTURE OF LOBELIAS.

BY MR. JOHN FOSTER, WELLINGTON ROAD, LONDON.

THE genus *Lobelia* comprises plants of much interest to an admirer of flowers; some of them exhibiting blossoms strikingly elegant, brilliant, and beautiful, and of a commanding figure in stature; whilst others, more humble in growth, are equally pretty and pleasing. In the former class, the plant rears up its splendid spike of the richest possible hue; the other, in prostrate beauty, displays a carpet of simple, yet engaging elegance.

Thinking a few hints on the culture of a number of the *Lobelias* would be acceptable to the readers of the *Cabinet*, I was induced to draw up the remarks here transmitted for insertion therein.

The *Lobelia* was so named by that eminent French botanist Father Plumier (who discovered the first species of it in America), in honour of Dr. Lobel, a learned botanist, who published the figures of a great number of plants at Antwerp, in 1581, and two or three other gardening books before that time. The genus is now ranked in the class *Pentandria*, and order *Monogynia*, although formerly classed in *Syngenesia*. The natural order is *Lobeliaceæ*, very closely allied to *Campanulaceæ*, from which their colour alone distinguishes them.

Lobelia cardinalis and *siphilitica* are natives of Virginia; *fulgens* and *splendens*, natives of Mexico; to which must be added the following hybrid productions raised in this country, viz.: *fulgens multiflora*, *lateritia*, *refulgens*, *pyramidalis*, *Queen Victoria*, *grandis*, *Bathania*, *Chalmeri*, *Topaz*, *longiflora*, *longifolia*, *siphilitica alba*, *Altontowriensis*, *Milleri*, *purpurea nigra*, *coccinea*, *coccinea superba*, *densiflora*, *dentata*, and *cærulea*. These are upright-growing kinds, in the way of *L. fulgens*; they are most beautifully distinct in colours, and blooming from the beginning of June to the end of October, are exceedingly valuable as ranking among the most striking ornaments either to adorn the greenhouse or flower garden. This section has been, within the last four years, enriched by a considerable number of beautiful hybrids, viz.: *Ajax*, damson; *amæna*, light blue; *azurea*, sky blue; *Belle-pyramidale*, plum colour; *cardinalis alba*, white; *cælestis*, violet-plum colour; *compacta*, fine blue; *episcopalis*, light lavender; *Favourite*, violet; *fulgens grandiflora*, deep crimson; *Roi Leopold*, deep blue; *insignis*, deep scarlet, very dwarf; *longifolia*, lilac; *l'Etoile du Matin*, violet; *purpurea*, purple; *marmorata*, blue and white; *Queen Victoria superba*, brilliant scarlet; *magnifica*, rich crimson-scarlet, immense size; *St. Olair*, scarlet; *siphilitica*, blue; *Vesuvius*, violet-crimson; and *Vierge Marie*, white.

All *Lobelias* are poisonous, though some have been used medicinally, as *Lobelia siphilitica*; hence its name. *L. cardinalis* is used as an anthelmintic, or destroyer of worms. *L. inflatus*, a very active emetic—I believe the most active known. *L. Tupa* yields a dangerous poison; the smell frequently causes headaches. *L. longiflora* is a most venomous plant; when taken inwardly nothing can stay its effects, and death is the sure consequence. I have inserted these remarks, more closely allied to botany than other parts of gardening, as a warning to any inexperienced persons (whom the splendid colour of the flower might deceive), considering that the names of all, and more especially such dangerous plants, cannot be too fully impressed upon every one's memory.

L. cardinalis and *siphilitica* can be propagated in the best manner from seeds, which ripen well in this country. All the other sorts I have named above can be propagated from seeds, offsets, and cuttings. I take off the suckers in October, and put each one in a pot, protecting them in a frame during the winter, forcing them gently on a dung hotbed, and shifting the plants into larger sized pots at various times, as they require it. The compost I use is made up of

yellow loam, and a small quantity of leaf-mould and sand mixed with it. The period when they require this repotting is from February to May. At the commencement of the latter month I remove them into a greenhouse, retaining such as I purpose for ornamenting the house during summer, and harden the others gradually to bear the full exposure of the open air. By this time they will have just begun to push forth flower-stalks, and some of the hardened plants must then be placed in water—if there is the convenience of an aquarium, so much the better; if not, a saucer filled with water is a very good substitute. Other plants must be planted out of pots in the open beds of the flower garden, keeping the balls as entire as can be done. They will begin to flower in June, and, if shaded, will last for many months in brilliant bloom. Shading is a general rule for all *high-coloured flowers*, such as *Achimenes coccinea*, *Crassula coccinea*, etc.

Propagation by cuttings is very frequently adopted. In June, take a young stalk, and divide it into lengths of five or six inches each; plant them under a hand glass, upon a border having an eastern exposure; water occasionally. Cuttings thus put off, strike with remarkable facility, and will be well rooted in a month, when the young plants may be managed as above directed.

As the plants always bloom the first or second year, it is the best plan to raise a good supply from seed. It should be sown immediately after it is ripe, and be protected under a frame. In the spring, the seeds will begin to vegetate and the plants appear; they should be transplanted into pots, and repotted as they require it during the year. The spring following they should be put into pots sufficiently large to give full scope to their roots, when they will be in flower about July.

The suckers should be taken off every autumn; for, if this is neglected, the plant will very likely be lost, as the stem will die down and rot; thereby weakening, if not destroying, the growing plants.

With the little trouble in culture above described, they will form one of the greatest ornaments in the flower garden. I have them frequently four feet high.

RAISING RANUNCULUSES FROM SEED.

BY A TWENTY YEARS' PRACTITIONER, FALKIRK, N. B.

SHOULD you think the following worthy a place in your Magazine, I should feel obliged by your inserting it in an early number.

Ranunculus seed is to be procured from *semi-double* flowers; care should therefore be taken to save it from such as are possessed of good properties, viz., such as have full strong stems, a considerable number of large well-formed petals, and rich good colours, chiefly preferring the darker, but not to the exclusion of the lighter coloured when their properties answer the foregoing description. The seed should remain

on the plant till it has lost its verdure, and becomes brown and dry ; it may then be cut off, and be spread upon paper, in a dry room, exposed to the sun, that every degree of humidity may be exhaled from it, in which state it should be put into a bag, and preserved in a dry warm room till the time of sowing, otherwise it will be in danger of contracting a dampness, which will soon produce a mouldiness that will infallibly destroy it. January is the proper time to sow the seed ; and in order to prepare it, it must be separated from the stalks to which it is connected in the following manner, viz. : in the first place, it should be taken out of the bag and spread thin upon paper, a tea tray, etc., and placed before a moderate fire, till it is just warm, and no more ; the seed will then easily scrape off, by means of a penknife ; but great care must be taken to avoid scraping it off in lumps, or suffering any pieces of the stalk, dried petals of the flower, or other extraneous matter to be mixed with it, which would create a mouldiness, when sown, of very destructive consequence ; when the seed is scraped in a proper manner, it will have the appearance of clean coarse bran, with a little brown or purple speck in the centre of each cuticle, which is the kernel.

When the seed is thus prepared, it should be sown on a shallow frame provided with glasses, similar to those made use of for cucumbers and melons ; the soil should have been previously taken out, three feet deep, and spread thin upon the ground till it has been perfectly frozen throughout, in order to destroy any vermin it may have contained. When the pit is filled up again with the frozen lumps of earth, it should remain till the whole mass has thawed and subsided to its pristine bulk, or nearly so ; its surface should then be made perfectly smooth and even, and the seed sown upon it with the utmost regularity, in such a quantity as nearly to cover it ; the glasses should be placed over it immediately, and the frame kept closely covered with them, for two or three days, till the seed begins to swell and soften ; a little light earth should then be sifted upon it, through a fine sieve, but not sufficient to cover it ; this should be repeated once or twice a week, till the greater part of the seed disappears : it is proper to remark that such seeds as happen to be covered deeper than the thickness of a half-crown piece will never vegetate, and must, of course, inevitably perish. It is necessary that the seed be kept moderately moist by gentle watering with soft water that has been exposed to the sun, but too much moisture is nevertheless injurious.

About the time that the plants begin to appear, it is requisite to stir the surface of the earth with a pin, just sufficiently to admit air, and give liberty to the young plants to pass easily through ; this operation should be very carefully performed, to prevent breaking off the fibres, or raising and leaving any of the plants out of the earth, because one hour's sun upon such would certainly destroy them.

After the plants are all up, and their two interior leaves appear, more air must be given, by having hurdles or lattice-work substituted for the glasses ; watering must be regularly continued in the manner

before described, when the long continuance of dry weather renders it necessary; but fine warm showers of rain are always preferable, when they happen in due time.

This kind of management is to be continued till the roots are matured, and fit to take up, which is known by the foliage becoming brown, dry, and nearly consumed. The roots are to be dried and preserved in the usual way, and to be planted the same time as large ones in the autumn; the greater part, or such as have two or more claws, will blow in tolerable perfection the following summer.

PLANTING RANUNCULUS, ANEMONE, HYACINTH, AND OTHER KINDS OF ROOTS, IN THE OPEN BORDER.

BY A LONDON FLORIST.

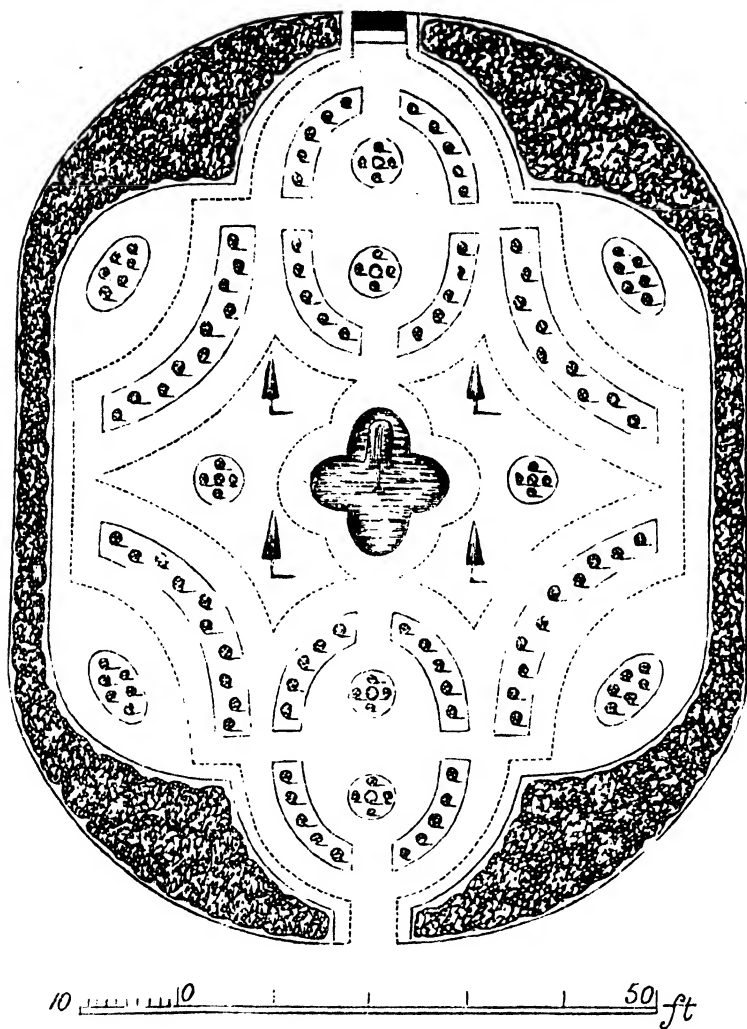
FAILURES and disappointments in their flowering chiefly arose from the fact that amateurs, and sometimes professed gardeners, plant them too late and too shallow.

No flower-root, however small, ought to be planted less than four inches deep, with the exception of the Ranunculus and the Anemone, and for the following reasons:—A flower-root at four inches deep is less liable to be affected by every change of weather than one planted two or three inches deep, consequently its vegetation continues with less interruption, cold weather does not so easily check its growth, or warm weather excite it prematurely. It comes on with its own peculiar season, and flowers at its proper time. By planting early it makes good roots, and is thus better enabled to withstand adverse weather. As a general rule, large flower-roots, such as the Crown Imperial, Hyacinth, Lily, and Narcissus, should be planted six inches deep, and not less.

Nothing is more simple and easy than the cultivation of the Ranunculus and the Anemone. Both ought to be planted as early in February as possible; but the beds ought to be prepared for them in November, as they do not succeed well in fresh-dug soil. Do not make composts, avoid them; but manure the common soil of the garden well, whatever that may be. The Ranunculus must be planted an inch and a half deep; the Anemone, two inches deep. Top-dress them within a week after planting (particularly when the soil is light and sandy, or where it soon becomes dry) with one inch thick of old manure, such as the remains of a cucumber or melon bed.

Failures in the flowering of the Ranunculus and the Anemone are nearly always owing to too artificial treatment. Admirers of these very ornamental flowers should bear in mind that they bloom in the hottest and driest months of the year, and being planted near the surface, the soil soon dries out to their roots; that the best way, therefore, to retain a proper quantity of moisture to carry out their growth, or to prevent too great evaporation of the ground, is to top-dress them, as already described.

DESIGN FOR A FLOWER GARDEN, BY T. RUTGER, ESQ.



THE design for a flower garden herewith presented is surrounded by a shrubbery, the shrubs for which should be of the choicest kinds. The circular beds are intended for masses, and the remainder to be

filled with a variety of flowers, such as may be in accordance with the taste of the proprietor. The pond in the centre should have a fountain, and stocked with gold and silver fish. There is a seat indicated at the extreme end, which may be covered with trellis-work and creepers, or an alcove may have the preference. It is not intended that the scale should be exactly arbitrary, a little deviation may take place as it regards the walks, beds, etc. The walks and the ovals surrounding the two circular beds, in each, are intended for gravel, with box or other kind of edging and the central compartments for grass.

CULTURE OF LESCHENAULTIAS.

BY CLERICUS, SOMERSET.

HAVING frequently seen plants of *Leschenaultia formosa* and *L. biloba* go off in the winter season, which, according to my own experience, proves there must be some mismanagement, as in numberless instances they do not even survive the first winter. By proper culture, however, they can be grown to a large size, as much as from three to five feet high, and as much round, covered with a mass of bloom. In this state nothing can be more beautiful, and this may be accomplished by practising the following rules:—Having procured some healthy plants, be very careful not to give them any check; place them immediately in the greenhouse, as near the glass as possible, and give them moderate waterings. They should be potted very carefully at all times, as soon as they require it. Success depends, in a great measure, on the compost prepared for them, which should be of the following materials, well mixed together:—Take equal parts of heath-mould, leaf-mould, and good rich loam; and then add a fourth part of charcoal, lime rubbish, and small bits of broken pots; mix all well together, and be sure to give a good drainage at the bottom of the pot. The *Leschenaultias* require but moderate supplies of water in the winter, but as the season advances give it more freely. These plants should be always kept in the greenhouse, giving them a good supply of air when the weather is favourable. If these few hints should be the means of preserving any of those most beautiful plants from an early death I shall be highly gratified, and the end would be fully answered for which I forward them.

CULTURE OF THE RANUNCULUS.

BY MR. GEORGE LIGHTBODY, OF FALKIRK, SCOTLAND.

AGREEABLY to your request, I now send you a few observations on the culture of the most beautiful and regular of all the florists'

flowers—the Ranunculus. I lay no claim to being a standard authority, but merely intend to state my own practice, the result of many years' experience; and the success by which it has been attended is known to too many for me to attempt anything like exaggeration.

Another object I have in view is, that your periodical offers a greater certainty of its preservation for reference than the columns of a newspaper. Beside, many persons apply to me for instructions: I shall in future refer them to the Number of the *Cabinet* in which this may appear, for writing such long details, and so frequently, has become rather irksome. Should I make any discovery at a future time that may be advantageous, I will with much pleasure communicate the same.

The situation best adapted for Ranunculus beds is an open level site, free from eddy winds and fully exposed to the sun.

Preparation of the Beds.—It is of great importance to have the beds prepared in a proper manner. I strongly recommend this work to be done in August, not later than the beginning of September.

My reasons for this early preparation are twofold. Fine weather may almost be depended on at this period, for the purpose of having the soil thoroughly sweetened, by turning what is intended for the surface of the beds frequently to the action of the sun. It also allows ample time for the consolidation of the beds, so as to make them retentive of moisture, to ensure a strong bloom.

There must be at the least two feet of good soil in depth; if there is not, the substrata will require to be removed, and replaced with rich soil of a retentive nature.

My practice is to remove the surface of my beds annually to the depth of nine inches. The subsoil is then turned up a whole space in depth, and well broken. I usually allow my beds to remain in this state for a day or two, to sweeten the subsoil as much as possible, by exposure to sun and air. I then throw into the beds about four inches of old cowdung not less than one year old, breaking it well. I then sprinkle over it some new slackened lime, finely sifted; shake up the dung so that the lime may penetrate through every part of it, to destroy all the worms; after this rake the dung level, and fill up with the soil intended for the surface; as the beds subside, fill up with soil reserved for the purpose.

The benefit resulting from the use of lime is, it corrects the acidity in the dung, and the cultivator will not be troubled with many earth-worms in his beds, casting out his roots and making their ugly casts on the surface, also making the soil pervious to the drying winds of spring.

For my subsoil I use a rich, clayey, friable loam, very retentive; but I prefer a rich light soil for the surface.

During the preparation of the beds, destroy everything that appears in the shape of vermin in the soil; soil for the Ranunculus cannot be too free from these pests. If there is wire-worm, spare no labour

to eradicate them; catch them and break them, give them no quarter, for they are the most destructive enemy that the florist has to encounter.

The best edging for the beds is a neat wood, one rising about two inches above the level of the paths; it harbours no vermin, and its utility will be perceptible when we come to the planting time.

Rake the surface of the beds occasionally; and during frost, break the surface with a spade, and pile up the frozen clods to allow the frost to penetrate as far as it will, but don't disturb the dung. Rake the soil level when a thaw takes place; this helps to keep the soil sweet, and destroy any vermin that may be in it.

Planting Time.—The time for planting will vary in the different portions of the island. In the southern part, spring is earlier by a fortnight than where I reside. A few degrees of latitude make a sensible difference in climate, therefore cultivators must be guided by the climate of their respective localities.

After the middle of February, when the surface soil will rake easily, and the weather is dry, I commence to plant. The beds must be full up to the wood edge, and quite level. This is best done by a piece of board extending across the bed; and two persons causing it to rest on the wood edge, and drawing it from end to end, will speedily remove any surplus soil, and leave the bed perfectly level. Then mark on the wood edge the rows—say four inches and a half apart for the old varieties, and five and a half for the new. If the beds are four feet wide, twelve or fourteen roots of the old sorts may be planted in each row, but ten of the new will be found sufficient, in consequence of their more vigorous habit. The best way to plant is to mark across the surface for each row. Then excavate with a trowel to the depth of one inch and a half. To ensure the exact depth, I use a piece of wood with a notch cut at each end, the requisite depth, which is pressed into the drill till the projecting parts rest on the wood edge (the back of it serves for levelling the beds). In planting the root keep the crowns up; press the claws into the earth firmly, to prevent worms casting them out, but take care not to break them. Two persons, after a little practice, will plant a large quantity in a little time by this process.

Management from Planting Time till Blooming Time.—The roots, after having been in the ground for a few days, swell to three times the size they were when planted. Should very wet weather occur, and afterwards sudden and severe frost, which is often experienced at this early season, there is danger of some of the roots being destroyed. In this case, it is advisable that some old mats or dry litter of any kind should be laid over the surface of the beds, to prevent the frost penetrating to the roots. The beds can be cleared when a favourable change takes place. By the middle of April the plants will all be up. They frequently rise so strong as to displace the soil about them. Look over them and take the displaced soil, break it, and put it about the neck of the plants. When the foliage of the

flowers—the *Ranunculus*. I lay no claim to being a standard authority, but merely intend to state my own practice, the result of many years' experience; and the success by which it has been attended is known to too many for me to attempt anything like exaggeration.

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plants has attained to the height of two or three inches, then is the proper time to stir the surface of the beds; do this carefully to the depth of two inches between the rows, but don't go so deep close to the plants. Break the soil fine, and keep it level. Take care that the plants are not disturbed nor their foliage injured. See that the soil is gently pressed around the neck of the plants, to keep out the drought. Persons who grow *Auriculas* will find it good practice to reserve a portion of their old compost, and after the beds have been stirred, strew it equally over the surface to the thickness of about a quarter of an inch. This serves for a top-dressing, and gives the beds a neat and finished appearance, and helps to keep out the drying winds of spring.

During April and May, should the weather prove hot and dry, it will be of advantage to the plants to water occasionally; this must be gone about with judgment, for in the event of frost taking place through the night, the foliage would suffer and the plants receive a check. When there is no appearance of frost, water liberally with rain or pond water, administered between the rows with the pipe of a watering pan held low, so as not to make holes in the soil. Spring water should never be used till it has been long exposed to sun and air, to soften it and raise its temperature.

Look over the plants occasionally previous to the bloom, for at this time they are liable to receive damage from cuckoo spit harbouring in the foliage, and a small destructive caterpillar that lodges in the embryo blooms, eating out the whole of the petals, and leaving nothing but the empty calyx.

(*To be continued.*)

REMARKS ON THE TAMARISK, OR TAMARIX.

BY A COUNTRY CURATE.

"On you rough crag,
Where the wild tamarisk whistles to the sea blast."

H. DAVY.

THIS beautiful flexible shrub, highly ornamental for the shrubbery, is the *Myrica* and *Tamarix* of the Latins. This latter name is supposed to have been derived from the Hebrew *Tamaris* (*abstersio*), on account of its abstergent qualities. It was a celebrated medicinal plant with the ancient Arabians, from whom the Latin authors seem to have borrowed their knowledge of the virtues of this plant; and the high encomiums which these Æsculapian writers bestowed on the Tamarisk, induced Grindal, Archbishop of Canterbury, to introduce it into this country, as a specific in disorders of the spleen. Camden, in his *Life of Elizabeth*, notices that the Tamarisk was first brought into England by Archbishop Grindal; and in the *Remembrances for Master S.*, by Richard Hakluyt, 1582, we are

told, likewise, that "when this archbishop returned out of Germany, he brought into this realm the plant of *Tamariske* from thence, and this plant he hath so increased that there be here thousands of them, and many people have received great health by this plant."

Dr. Turner writes fully on this plant, in his *Herbal*, which was published in 1568, when it appears to have been unknown in this country; for he observes, "it may be named, in English, *Tamarisk*, because, as we want the bushe, so also we have no name for it in England." This author tells us, that he "saw it in diuerse landes in Italy, in an yland betwene *Francolino* and *Wenish*, in Germany, in diuerse places about the *Ren*, not far from *Strasburg*; and in *Rhetia*, in a stony place, som tyme of yeare used to be ouerflowen with the *Rhene*."

Gerard notices that it grows in Germany, Spain, Italy, and in Greece, and he tells us that both species of this plant grew in his garden in 1596.

Later botanists mention it as a native plant, because Mr. Giddy and W. G. Mason, Esq., found it growing on *St. Michael's Mount*, Cornwall, in the year 1794, as also near *Hurst Castle*, Hants; and Dr. Goodenough saw it near *Hastings*, in *Sussex*; but this is by no means satisfactorily proving it to be indigenous to our soil, as in all probability it sprang from cultivation in the two latter places, and from some accidental circumstance on the former spot, for it is of so easy propagation that the least sprig of it will often take root when thrown on the earth, and its not maturing its seed in this country is a sufficient proof of its foreign origin.

The *Tamarisk* has been frequently celebrated in the verses of the ancient poets. Homer mentions it as the tree against which *Achilles* laid his spear, before he plunged into the *Xanthus*, to pursue the routed *Trojans*. It is introduced in the *Pastorals* of *Theocritus*, and *Virgil* has noticed it several times in his *Eclogues*. Its name may also be found in several passages of the poems of *Ovid*.

The Romans considered it an accursed plant, and frequently speak of it as the unhappy *Tamarisk*, as it was used for wreaths to put on the heads of criminals. But as a remedy for diseases of the spleen it was considered of such efficacy, that drinking-cups were made out of this wood for those that laboured under this complaint, and the physicians ordered their patients to eat out of dishes formed from *Tamarisk* wood.

The magicians used it to impose upon the credulous by their pretended magical powers, and they ascribe qualities to this plant too much against common reason and decency to mention. *Pliny* mentions its use for besoms amongst the Romans.

It is found abundantly on the mountains of *Dauria* and *Caucasus*, in the Russian empire, and the Russians and Tartars use a decoction of the twigs in the gout and rheumatism, and contusions of the limbs, as a fomentation; they also drink it in case of internal injury. They make handles for whips, &c., of the wood.

Dr. Smith remarked this plant in great plenty in Italy about Sinigaglia, and all along the hedges near the sea, where the sheep preferred it to every other food, never touching any other vegetable while that remained. It grows plentifully also on the coast in Algiers, as well as in Japan. In some places it grows to a tree of middle size, but in England it remains as a shrub, seldom exceeding three yards in height.

The Tamarisk thrives in bleak situations by the sea-side, where most other trees and shrubs are cut off by the blast, for the branches of this plant are so pliable, that they bend without resisting the slightest gale, thus reminding us of the fable of the reed and the oak, or the lines of Hurdis:—

“ And so the storm,
That makes the high elm couch, and rends the oak,
The humble lily spares. A thousand blows,
That shake the lofty monarch on his throne,
We lesser folks feel not. Keen are the pains
Advancement often brings. To be secure,
Be humble; to be happy, be content.”

We have few shrubs more graceful than the Tamarisk, its slender branches being covered with a chestnut-coloured bark, and garnished with very narrow leaves, lying over each other like the scales of fish, and of a fine bright green colour. This plant is in appearance between the cypress and the common heath. Its flowers appear in July, and are produced in taper spikes, at the ends of the branches; they are very small, and set close all round the spike, of a lilac colour, with red anthers. These are succeeded by oblong, acute-pointed, three-cornered capsules, filled with small downy seeds.

When planted in the shrubbery, the Tamarisk should mix with plants of broad and fixed foliage, as the laurel or holly. It is also calculated to cover the sides of hills, where it is desirable not to take off the view by taller trees; but its principal advantage over most other shrubs is in marine gardens, where it soon acquires sufficient height to protect rose-bushes and other low flowering shrubs. The Tamarisk is a deciduous tree, although when in foliage it has all the character and appearance of an evergreen shrub.

NOTES ON NEW AND SELECT PLANTS.

62. *GNONOCALYX PULCHER*. It belongs to the Natural Order *Vaccinææ* (Bilberry). It is a charming bushy shrub, almost covered with its neat, tree Box-like foliage. The young shoots as well as the young leaves are of a beautiful rosy purple colour; the full-grown leaves are of a rich green. The flowers are produced in long spikes, which terminate in a coronet head of six to eight blossoms. Each

flower is tube-shaped, three quarters of an inch long, of a bright red colour tipped with white, similar to those of *Epacris grandiflora*. The plant is almost covered with its flowers. It is a charming greenhouse plant, and it appears likely to grow out-doors in warm situations. M. Linden has plants for sale.

63. *CUPHEA EMINENS*. In our last year's volume we noticed this very charming species. It is so valuable an acquisition that we again recommend it to our readers. It is a half-shrubby plant, branching freely, and blooming in vast profusion. The flowers are produced in long, branchy, terminal spikes. We have a spike now before us, which is eight inches long, and has sixty flowers upon it. Each blossom, tube-shaped, is an inch and a half long, a brilliant red, with a quarter of an inch tip, of a rich orange-yellow; the leaves are much like those of a narrow Peach leaf. It is highly ornamental for the greenhouse, growing about eighteen inches high, and blooms all the year, by providing a succession of plants. It appears likely, too, to be one of the loveliest bedding plants. M. Linden has plants of it.

64. *DENDROBIUM BIGIBBUM*, (*Double spurred*). Nat. Ord. *Orchideæ*. Discovered by Dr. Thomsoso, on Mount Adolphus, Torres Straits, on the north-east coast of New Holland. The slender pseudo-bulbous stems, rise to about nine inches high, and from these older stems the flowering shoots arise, which are about as long as the stem, each bearing from two to twelve-flowered. Each blossom has large petals, nearly round, of a deep rich lilac colour, and the lip a deeper colour, with the disc having a large elevated white crest. Each flower is about an inch and a half across; very pretty. Mr. C. Loddiges, of Hackney, possesses plants of it. (*Fig. in Bot. Mag.* 4898.)

65. *CYPRIPEDIUM PURPURATUM* (*Purple-stained Lady's Slipper*). Nat. Ord. *Orchideæ*. It is a native of the Malayan Archipelago. The leaves are (longest) from four to five inches long, deep green, beautifully mottled with almost black spots. The flowers (each) are about four inches across; *sepals*, spreading, two *upper ones* very large white, richly striped with purple; *petals*, large, spreading, a brownish-purple, streaked at the base and spotted with deeper purple; *labellum* (slipper) large, helmet-shaped, greenish-purple, with darker veins. The flower-stems rise about ten inches high, each crowned with one of its beautiful and highly interesting flowers. The plants flourish in the *moist temperature* of a stove, or hotbed frame, pit, etc. It begins (usually) to bloom in November, and continues through the winter. (*Fig. in Bot. Mag.* 4901.)

66. *BANKSIA VICTORIA*. Nat. Ord. *Proteaceæ*.—Mr. Drummond sent seeds of this very fine *Banksia* from the Swan River Settlement. He justly observed, "it is a most noble species, very near like *B. speciosa*, but easily distinguished from it by the segments of the leaves being larger, flat, not white underneath, nor scrobiculate above;" and Mr. Drummond honours it with the name of our gracious Queen. It

forms a good-sized handsome shrub. The heads of flowers are globe-shaped, beautifully arranged in *spiral lines*, yellow tinged with red. (*Fig. in Bot. Mag.*, 4906.)

67. *CATTLEYA MAXIMA*.—A native of Columbia and Guayaquil. It approaches near to *C. Mossia* and *labiata*. It is a very beautiful flowering plant; each blossom is about six inches across, being produced in panicles of six or seven in each. Sepals and petals of a pale rose colour. *Labellum* large, tube white, and in the disc or centre is an orange-coloured streak, and from a deep rose-coloured line bordering that, a number of branching lines of the same colour diverge towards the margin. It has recently bloomed in the collection of Orchids belonging to W. G. Farmer, Esq., of Nonsuch Park, Surrey. (*Fig. in Bot. Mag.*, 4902.)

68. *ENCEPHALARTUS CAFFER* (*The Caffer-bread*). Syn. *Cycus Caffra*.—It is the *Bread-tree* of the Caffers; and the substance called *Caffer-bread*, Thunberg tells us, is "the medulla or pith (in other words, the cabbage, or young unformed leaves, while yet within the substance of the top of the trunk), from which the Hottentots contrive to prepare their bread. For this purpose, after scooping out the pith, they bury it in the earth, and leave it there for the space of two months to rot, after which they knead it and make it into a cake, which, in their usually slovenly and filthy manner, they slightly bake in the embers. I observed that the tree stood in dry and sterile places, between stones, and grew slowly. The seeds are also roasted and eaten. Sir W. J. Hooker says, "The individual plant from which, our drawing was taken exhibits a *leafless* trunk (it had been blackened by the fires of the natives), six feet long, erect, cylindrical, and its girth nearly four feet. Forming a beautiful crown on the scaly summit, arise the *leaves*, thirty or forty or more, spreading in all directions, three to three feet six inches long, leathery, pinnated for the whole length; each *pinna* about six inches long, making the leaf a foot broad. It has a neat and interesting appearance. (*Fig. in Bot. Mag.*, 4903.)

69. *LÆLIA ACUMINATA*. Nat. Ord. *Orchideæ*.—It is a native of Guatemala, from whence it was sent to the Horticultural Society by Mr. Hartweg, with the name of *Flor de Jesus*, so called on account of its beauty by the natives. It was discovered, at a place called Retatulen, growing on the trunk of the Calabash-tree. It is a rather small plant, each leaf being about four inches long and one broad. The flower-scapes rise to about ten inches high, and each bears four flowers, which are spreading, flat, pure white, with a stain of yellow in the disc, which at the base is a deep purple; each blossom is about two inches across. (*Fig. in Bot. Mag.*, 4905.)

70. *RHODODENDRON MOULMAINENSE*.—Discovered in Moulmain, on the Gerai Mountains, at an elevation of 5000 feet, by Mr. Thomas Lobb, who sent seeds to Messrs. Veitch, in whose establishment plants have bloomed in the greenhouse. It forms a neat shrub, having reddish branches. Leaves mostly spreading, about six together

close below the terminal head of flowers; each leaf about four to five inches long and two broad. The flowers form an umbel, containing from ten to twelve blossoms, pure white, tinged with yellow on the upper side within, of a funnel-bell shape; each blossom about two inches across. (*Fig. in Bot. Mag.* 4904.)

71. *WATSONIA IRIDIFOLIA*, var. *fulgens*. Nat. Ord. *Iridææ*.—It is akin to the *Gladiolus*, *Ixia*, etc., and is a charming and very ornamental flowering hybrid. The flowers are produced in long erect spikes, of a brilliant orange-scarlet colour. Each blossom is about three inches long, the tube being two, and the six end lobes (face of flower) are an inch long, making the front two inches across. It blooms profusely from July to the end of summer. It merits a place in every flower garden or greenhouse. (*Fig. in M. Van Houtte's Flor. des Serres*, 1077.)

72. *EXACUM MACRANTHUM*. Nat. Ord. *Gentianææ*.—It was discovered in 1840 by Mrs. General Walker, on the mountains in Ceylon. It was introduced by Mr. Thwaites, in 1852, to the Royal Gardens at Kew, and the Botanic Garden in Dublin. The flowers very much resemble those of a *Solanum*, each blossom being about two inches across, of a rich deep blue colour with yellow anthers, that make a pretty contrast. The leaves are oval shaped, about three inches long. It blooms profusely, the flowers being produced in terminal, branching, panicked heads. It is very handsome, and merits a place in every collection. It flourishes when treated similarly to the *Lisianthus Russellianus*. (*Fig. in Flor. des Serres*, 1078.)

73. *SALVIA PORPHYRANTHA*. Nat. Ord. *Labiataæ*. Mr. Bentham, in 1848, enumerated 400 species of *Salvias*, which are recorded in the *Prodromus* of Decandolle, and amongst such a multitude, the present *dwarfish* species will rank with the *neatest* and *prettiest*. It is an herbaceous plant, the upper portion, being soft stemmed, dies down. The leaves are heart-shaped, about an inch long, and the same across. It is a most abundant bloomer, the numerous flowers being produced in spikes of six to eight inches long; each tube-shaped blossom is an inch long. The calyx is a purple colour, the corolla a rich scarlet-red, and being produced in profusion it is very ornamental. In the greenhouse it begins to bloom in February, and continues through the summer. It is, too, an admirable dwarf plant for bedding purposes. (*Fig. in M. Van Houtte's Flor. des Serres*, 1080, who has plants of it.)

74. *WHITLAVIA GRANDIFLORA*.—Amongst the new *hardy annual* flowers of recent introduction, this ranks with the prettiest. It is a native of California, where it was discovered by Dr. Coulter, 1845. Subsequently (in 1854) Mr. Thomas Lobb discovered it, and sent seeds to Messrs. Veitch. Seeds may now be procured of the principal seedsmen. It grows from nine to eighteen inches high, branching freely, and blooming profusely, if not in a *very rich* soil, as it then produces too much foliage. The flowers are *bell-shaped*, of the richest gentian-like blue colour, with a tinge of rose inside; each blossom is an

inch long, and an inch and a half across the mouth. It merits a place in every flower garden. (*Fig. in Flor. des Serres*, 1085.)

75. RHODODENDRON ETOILE DE VILLIERS.—This most beautiful variety has been obtained between *R. ponticum* and *R. Cataubiense*, in the nursery establishment of Messrs. Lemichez, of Neuilly, in France. The habit is more that of *Cataubiense* than *ponticum*. The flowers are produced in *large heads*; each blossom two and a half inches across; petals of thick substance, of regular broad outline. The ground is white, with one-third of it (next the margin) of a very lively cherry-rose colour. The upper segment is numerous and handsomely ornamented with golden spots. The anthers are a *violet* colour, contrasting prettily with the rose and white. It highly merits a place in every collection of evergreen shrubs. It is perfectly hardy. Plants may be had of Messrs. Lemichez, or probably M. Van Houtte, through the medium of any of the principal nurserymen in England. (*Fig. in Flor. des Serres*, 1084.)

76. AMARYLLIS SOLANDRAEFOLIA.—It is a native of South America; a hothouse plant of medium stature. The flowers are large; each blossom about nine inches long, and four across the front, of a greenish-yellow and white, with narrow stripes of red; very neat. There are several varieties of *A. Solandraeflora*:—1. The flowers are white and green. 2. White and green, striped with purple. 3. Limb of blossom white and green, the tube purple. 4. The tube purple, the limb white and green, tinged with pale *carmine*. (*Fig. of the species in Flor. des Serres*, 1081.)

77. PHARBITIS HISPIDA (the *Convolvulus major* of our gardens). There are several new varieties of this very charming climber. M. Van Houtte has figured three handsome plants in the *Flor. des Serres*, viz.:—1. *Flore albo cœruleo-striato*. It has a white ground, with numerous stripes of blue and scarlet. 2. *Flore Kermesino*. Tube white, and the other portion (limb) a beautiful rosy scarlet. 3. *Flore violaceo*. Tube white, and the limb violet tinged with crimson, and five stripes of rosy red. Each variety is handsome. M. Van Houtte offers seeds of them, which may be had by post. (*Fig. in Flor. des Serres*, 1079.)

INSTRUCTIONS FOR JUVENILE GARDENERS.

BY A CLERGYMAN.

AFTER your piece of ground has been cleared, dug, and raked smoothly, it must be neatly chopped round with the back of the spade, properly guided by a garden line, fixed even and tight, just above the level of the ground. This may be made of whipcord, fastened at each end by a prong of wood, large enough to keep it steady. When this is done, you may consider what the border is to consist of. Some prefer, as a garden border, what the agriculturists call a dead fence; and this

may be made of bent osiers, or other flexible sticks, put round your ground in little arches; or it may be framed; or stones, or bits of tile, or wood, placed regularly. Others like better what is called a live fence; and this may be made of Daisies, Thrift, Stonecrop, turfs of Grass, or Box. I own that I much prefer a union of both a live and dead border. A pretty edging may be made with large white sand stones, which are found on the sea-beach, and may be easily collected by those who live near the coast. In place of these, the odd-shaped flint stones, that are to be found in almost every clay, gravel, or chalk pit, if placed round a little plot of ground with taste, form no unpleasing border. These must be half-way bedded in the earth, or they will not hold firm, and an edge of plants proper for the purpose must be placed just within the row of stones; the roots of the plants will bind the stones tight in the ground, and the whole looks well together.*

The Stonecrop is called, in some counties, Gold Dust, and in others, Wall-pepper; it is one of the numerous tribe of Sedums. Like the House-leek, it grows on the tops of walls, which it covers with its bright golden blossoms; the leaves are little thick three-cornered knobs, and have, if bitten, a very pungent, hot taste; it grows wild on many parts of the coast, and there are three varieties of the same plant—yellow, pink, and white. Its advantages as a border are, that it is very small, grows thick and close to the ground, is a long time in flower, and blossoms a considerable time. Like the rest of its tribe, it is apt to spread too much; this defect is easily remedied by the edge being now and then cut with a knife. Double Daisies form a charming border, and they are seldom out of flower at any time of the year.

Thrift is likewise useful for this purpose. One of the varieties is a very bright carmine-pink—this is rare; the common is lilac; some I have gathered in the salt marshes, of a pale flesh colour. Like the Stonecrop, this is a marine plant. If the seed-vessels of the Thrift are cut down when the blossoms fade, more flowers will spring, and your border look always neat and pleasing. Box is not so desirable, as it is a long time growing, and produces no flowers. Grass bordering is very well on a large scale, but it is difficult to be kept in order without the scythe.

Now we have provided the border, let us give some consideration to the interior. These little plots of ground are best suited to the cultivation of small and delicate plants; and care must be taken that what is put therein is not suffered to increase and spread too much, so as to draw all the nourishment from its neighbours. It should be one of the amusements of youthful cultivators, to remove carefully any superfluous suckers from the plants under their care, leaving

* [Short stakes driven into the ground, at a few inches apart, to which plain or striped leaved Ivy, etc., is trained, make a very neat fence for beds of Hollyhocks, Dahlias, etc.; or Larch, Yew, Holly, Arbor Vitæ, etc., kept clipped a foot high, answer well.—EDITOR.]

only two or three stems, which will be far more vigorous and beautiful, than if the plant is left to throw out eight or nine. There is, beside, more room for variety. It is likewise desirable to know what plants grow and blossom freely in the shade; as some change their colours, become sickly, and actually die, if planted under a tree, or beneath a north wall.

Polyanthuses, Violets, Primroses, double and single Cowslips, and Snowdrops, not only flourish in the shade, but prefer it. So do the whole tribe of the Narcissus, the beautiful Lily of the Valley, Grape Hyacinths, Blue-bells, and Cyclamens. This last is well worthy of attention; it is a scarce but a remarkably beautiful flower, and singular in all its habits. I do not mean the large Persian Cyclamen, that is commonly seen in pots, in the spring of the year—a costly and cherished inhabitant of the greenhouse—but a small English species, that grows wild in many parts of England. It has a large, oblong root, as large as the largest potato, and when cut it has the appearance of the flesh of that root. The Cyclamen has no footstalk, but every flower and leaf ends in a radical filament, by which it is fastened to the large fleshy bulb that is its principal root. The leaves are perhaps more beautifully marked than any other vegetable production; they are irregularly heart-shaped, large, of a dark green, figured all over with a variety of the most beautiful patterns in light green, black, and white; the reverse of the leaf is of a bright carmine colour, veined and shaded with light green. The flowers are delicate, and worthy of the closest examination. Some are white, shaded with lilac at the bottom; and another sort is bright lilac, shaded with crimson in the same manner. They are shaped like little mitres, and grow very close together, though their stalks are not united. The flowers spring up after the old leaves die away, and form a most beautiful group in the autumn. Their favourite residence is at the roots of an old tree. The seeds are likewise worthy of remark. They, of course, take the place of the flower, and the seed-vessel grows to the size of a small nut, of a dusky red-brown; but, what is perhaps the most curious of the habits of this singular plant, when the seed is ripe, the stalk which supported the flower, and was before very straight, now begins to curl itself round like a corkscrew, till it gets close to the earth, and even deposits the ripe seed therein, as if for the purpose of taking root!

Among small shrubs, the dwarf Almond, all the species of the Mezereon, the Victory Laurel, and the small kind of the *Laurus*-*tinus*, will flourish in the shade; but, above all, the Chinese or Monthly Rose will produce its long succession of beautiful buds and blossoms better in a cold shady place than in the full blaze of sunshine. It is desirable to know that this charming flower grows very readily from cuttings, if the slips are planted in the months of June, July, or August. All kinds of the deciduous or summer Roses are propagated by parting the roots; but this, which is nearly

evergreen, is easily multiplied by pieces cut from the bush [also by budding—Ed.], as it never throws up suckers. Whenever the wood of a Monthly Rose plant looks rough, scraggy, and unsightly, it is a good plan to cut it down level with the ground or pot, then divide the branches you have cut off into many slips, leaving on each two or three joints. Place these in very moist loose earth, having one joint out of the ground, and one or two beneath it; because leaves will spring from that part of the slip that is exposed to the air, and roots from the others. The shade of a wall is the best situation for these. The slips must be well watered, and in a few weeks new leaves will appear (a sure sign that the plants have taken root), and the slip will often bear buds and flowers before the end of autumn; these, however, should be nipped off, as they weaken the young plants. They will stand the winter very well, and be fine little Rose trees in the spring, fit to pot; thus, from the refuse of an old plant, a great number of young Roses may be reared. This operation, too, is attended by the greatest benefit to the plant that is cut down, as it will throw out many strong shoots, of a beautiful deep red, which will thrive with astonishing rapidity, and produce larger and fairer Roses than any that grow from old wood. The Scarlet Monthly Rose, of every variety, both double and single, may be reared in the same manner.

The best Anemones are rather costly flowers, whose roots always bear a good price. It is a common but, as I have often proved, a very mistaken notion, that if this plant is reared from seed, it requires four or five years of constant attention before the seedlings blossom. If the seeds, which appear like tufts of cotton mixed with dark specks, be gathered and sown in a box full of light fine earth directly they are ripe, they will soon come up, with two pointed, long, slender leaves, and before the autumn is over, these will be succeeded by the leaves usual to the perfect plant, which are beautifully cut in many divisions—something like parsley-leaves, but finer. The whole plant then dies down for the winter; and the roots, if examined, have the appearance of small lumps of earth, and are very difficult to find; for this reason they are best sown in a box, as they are liable to be lost in the open ground. It is desirable to leave the box undisturbed—only let it be carefully weeded. The young Anemones will make their appearance in the spring, and seldom fail of blowing the succeeding autumn, when they are a year old. I have known some, when they liked the ground, even bloom the spring after they were sown. After they have blossomed, the plants will die down, and the roots must be carefully dug up, and if left undisturbed in the border, will increase very fast.

It only now remains to say a few words to those who love plants, and are not so happy as to dwell in the country to enjoy them. All plants in London need just twice as much water as they do in the country; because the acrid nature of the smoky atmosphere naturally dries up their moisture. The leaves should likewise be

sponged, when they are covered with dust or blacks. Geraniums and Monthly Roses are the plants most desirable for a London veranda, because if watered every day, and placed level with the light, they produce a constant succession of leaves and flowers. Hydrangeas, both the pink and the curious blue variety, are flowers often seen in the metropolis: if properly treated, they retain their beauty many weeks, but they are generally starved for want of water. The Hydrangea is a native of a marsh, and will grow luxuriantly half immersed in water, therefore its pot ought to be plunged in a large pan constantly kept full of water; the plant will then thrive and flourish, even in London. Pinks, Carnations, and Stocks, though favourite flowers in the windows of the metropolis, it must be remembered, yield no second produce of blossoms; they bloom but once in the year, and their beauty lasts only a short time. It must be observed as a constant rule, both in town and country, to remove instantly all faded blossoms, as well as dead leaves; the plant is then kept in health, and is not exhausted by bearing seeds.

And now, wishing my young friends flourishing gardens, and a profusion of beautiful blossoms during the present year, I bid them farewell.

MISCELLANEOUS.

ON THE NEW CARNATIONS AND PICOTEEES OF 1855, by R. R. O.—The past season has, in some localities, been comparatively unfavourable to the perfect development of the Carnation and Picotee bloom, and therefore the experience of an individual cultivator may scarcely warrant censure on several new flowers, which have been anything but satisfactory, until they have undergone another year's probation, and possibly under more favourable auspices. I will therefore assume the more pleasing duty of recommending a few that are *really good*, and worthy a place in the most choice selections.

The first in order stands Hope (Puxley), C.B., which, though not A 1 of its class, is a beautiful, bright, useful show flower. Exit (May), S.F., is a flower of great refinement, but of bad constitution, being shy of increase, and most difficult to winter, even under judicious care. Christopher Sly (May), S.F., is a very fine flower, and one, I am persuaded, will wear Exit out, being of fine habit of growth, rich colour of peculiar crimson shade, superb petal, and good form. King John (May), R.F., can easily be beaten in its class, yet it is a fine, useful show flower, as grown in the south. For the midland counties it is three weeks too late in its blooming. It attains immense size, yet is rather *full*, to my fancy. In Picotees, there have been a few superb additions; and first on my list is Mrs. Bayley (Dodwell), H.P.E.; assuredly, up to the present time, A 1 of her class. Finis (May), Mrs. Keynes (Norman), and Amy Robsart (Dodwell), light

purple edge; it will be difficult to surpass in excellence, or to decide which is the best of the three, though all are perfectly distinct. Mrs. Hoyle (Hoyle), H.R.E., is an extra fine variety, but unfortunately too late for the midland counties. In light reds, we have three gems in Rosetta (Turner), Mrs. Kelke (Turner), and Miss Wake (Haddon); each and all are first-class flowers. Lady Grenville (Turner) is a heavy rose, of a pleasing, soft colour. I have seen it very fine. With me the petal inclined to reflex, and the marking was more feathered than solid. Alice (Hoyle), heavy rose, is a gem of unsurpassed excellence; pre-eminently distinct from Venus (Headly). The foregoing close my list for approbation, and, for the benefit of beginners (of whom I trust there are many), I subjoin a list of thirty-six *accessible* varieties:—

Carnations. S.B.s—Admiral Curzon (Easom), *Omar Pacha (Puxley), Mr. Ainsworth (Holland); C.B.s—Black Diamond (Haines), Hope (Puxley), Jenny Lind (Puxley); P.P.B.s—Sarah Payne (Ward), *Morgan May (Turner), Falconbridge (May); P.F.s—Premier (Millwood), Julia (Nicklin), Mayor of Oldham (Hepworth); S.F.s—Christopher Sly (May), Queen Victoria (Simpson), Tybalt (May); R.F.s—Uncle Tom (Bramma), Poor Tom (May), Lovely Ann (Ely).

Picotees. H.P.E.—Mrs. Bayley (Dodwell), Alfred (Dodwell), Countess (Fellowes); L.P.E.—Finis (May), Mrs. Keynes (Norman), Amy Robsart (Dodwell); H.R.E.—*Sultana (Turner), *Dr. Pitman (Turner), Rufus (Merryweather); L.R.E.—Rosetta (Turner), Mrs. Kelke (Turner), Mary (Dodwell); H.Ro.E.—*Mrs. Drake (Turner), Helen (May), Alice (Hoyle); L.Ro.E.—*Bertha (Marris), *Florence Nightingale (Dodwell), Mrs. Barnard (Barnard). Those marked with an asterisk are new this autumn.—R. R. O., Nov., 1855.

Another correspondent writes,—May's Galatea must not be lost sight of. With me it has been a worthy rival of Sarah Payne. John o'Gaunt has been as treacherous as he was last year. Exit has been extra-extra; full without confusion, a superb scarlet, and one of the best whites I ever saw. Prince Albert was very good; as also was Mrs. Hoyle. Mrs. Headly is a regular burster. Hoyle's Alice will be a beat upon Venus, but is such a flower to burst. I lost every pod on two plants, although I must plead guilty to a little neglect in watching. Black Diamond has bloomed most excellently, and Captain Franklin has been marked admirably. King John has flowered with me in fine style, and is a decided acquisition. Amy Robsart was very fine, and attracted my particular attention. Harry-Bertram, although very full, was good in the later blooms. The first blooms were barred in the extreme. Annot Lyle was rather out of character. Of Kaye's Excelsior I had a magnificent flower, failing only in the white; rather a large failing to be sure. Kaye's Comet, S.F., appears a beautifully marking flower, but is terribly "leggy." I firmly believe he must have raised all of that batch from Hamlet, they are all so much alike in their growth. What is your opinion of Young Milton, C.B.? Mine bloomed rather heavy in colour, but I

think I grew it too richly, as it was backward, and I pushed it too much. This may account for the indistinctness in its colour.—
(*Midland Florist*.)

HORTICULTURAL SOCIETY'S MEETING, REGENT STREET, FEB. 26.—Some observations on grafting were made on this occasion by the Vice-Secretary, Dr. Lindley. He began by stating that grafting often occurs naturally, as is instanced by branches, fruits, and even petals of flowers in close contact, and under certain conditions growing together, and went on to show that such accidents had doubtless led to effecting the same thing artificially. It is in reality, he said, the property of all living vegetable tissues to form permanent adhesions under certain circumstances. *Very young* or nascent tissue may be made to grow together with facility, as is exemplified in practice by what is called herbaceous grafting. Ripe tissues were next alluded to; but even in the case of these it was shown that a union could only be effected by bringing into contact nascent matter, which practically consists in fitting the line of the cambium in the stock neatly to that of the scion, or, in other words, fitting the two together exactly. If this manipulation was not effected skilfully, the union, it was stated, would be imperfect, as would also be the case if the stock was broader than the scion. It was mentioned that some believe that the scion sends down wood into the stock, but that this theory was attended by many difficulties. The point had been illustrated by Dr. Maclean, of Colchester, who grafted a yellow Beet on a red one; when the two were split down the middle after they had been united, it was found that the yellow Beet still remained yellow, and that the red kind on which it was grafted still remained red. In this case there was no blending together of the tissues; the two varieties kept quite distinct. Cellular tissue, it was stated, would not unite with wood, nor wood with wood; with unskilful operators and the employment of unsuitable stocks, bad joints were therefore of frequent occurrence. Although the scion was not of the same nature as the stock, there might be adhesion; but the line of separation between the two would always remain distinct, and in bad cases it not unfrequently happened that the two parted company across the line of union. Nevertheless, when stock and scion were alike in kind and constitution, as when a Pear is grafted on a Pear, and the workmanship well performed, all traces of their having been grafted disappeared. It was stated that, under proper conditions, adhesions might therefore be permanent and perfect, and that grafting might result in as complete a plant as any seedling. Of this various proofs were produced. It was shown, however, that adhesions might be temporary, either from bad workmanship or from want of consanguinity. The ancients, it was stated, were of opinion that Apples would grow on Plane trees, and Beech-mast on Chestnuts; but it was explained that this was a mistake, and that no permanent union could take place unless stock and scion had the same constitution. Sometimes durable unions might be effected, as was instanced in the

case of Pears on Quinces, and Peaches on Plums; but they were not permanent. Evergreen trees, it was stated, did not succeed on deciduous ones, in illustration of which, an example of *Quercus Turneri* worked on the common Oak was produced; the evergreen in this case had grown for thirteen or fourteen years, but was now dead, while the stock was alive and throwing out suckers. Similar cases, with nearly as bad results, were also before the meeting. But what, it was asked, is "the same constitution?" Peaches take on Plums, although constitutionally unlike; but what is very curious, French Peaches, which take freely on the Pear Plum, dislike the Mussel Plum; and other examples of the same kind were brought forward. It was stated to be far easier to say what was not the same in constitution. The Cedar of Lebanon, for instance, would not long agree with a Larch, nor the Medlar with the Whitethorn, or the purple Cytisus with the Laburnum. In general, the following conclusions might be drawn:—1. A scion will always form a perfect and permanent union with its stock if both are from the same individual. 2. A scion will generally form a perfect and permanent union with its stock if one is a mere variety of the other. 3. A durable, but not permanent union may be effected when one species of a genus is worked on another species. 4. No union, either durable or permanent, can be expected when stock and scion are widely different. 5. Bad workmanship will render any kind of grafting perishable. Grafted plants, then, are not necessarily worse than seedlings. A letter from a Fellow of the Society was read, to show that in the case of Rhododendrons, at least, they were. Examples in the shape of grafted Rhododendrons, apparently proving the contrary, were, however, produced by Messrs. Standish and Noble. It was, nevertheless, universally admitted, that except the stock and scion were identical in their natures, plants thus increased were not so good as seedlings. Both reason and experience therefore showed that everything depended on the consanguinity of the stock and scion, and that what is wanted is not to have new methods of grafting invented, but to know more about consanguinity. Mr. Glendinning objected to the statement that evergreen Oaks did not live long on deciduous ones, and pointed to the fact that in Devonshire the Lucombe Oak worked on *Quercus Cerris* had attained the size and age of timber trees. The room was plentifully supplied with specimens of grafted plants from Messrs. Standish and Noble, of Bagshot; Veitch and Son, of Chelsea and Exeter; Masters, of Canterbury; Osborne, of Fulham; Rivers, of Sawbridgeworth, and from the garden of the Society.

QUESTIONS, ANSWERS, AND REMARKS.

ON DESTROYING WOODLICE.—How am I to destroy, most effectually and readily, woodlice, with which I am pestered in my greenhouse and frames to an enormous degree?—*Alpha*. [Cold boiled potatoes put into small garden pots, and covered with a little loose moss, and placed where most likely to be found by the insects, is the best

method we have tried. The insects are fond of the potato, and remain concealed under the moss. The pots require examining early in the morning, and the insects destroyed; when requisite, replace with fresh potatoes. We have used ingredients, poisonous, which, mixed up with other things, effectually kill the insects partaking of it; but as danger attends such a mode of destruction, we do not recommend its adoption.—*Editor.*]

ON PREVENTING BULBS THROWING OUT SHOOTS DURING A VOYAGE.—Will you inform me, through any of your correspondents, in what way roots, such as Dahlias or bulbs, may be conveyed to the Antipodes, a four months' voyage, so that they may not throw out any shoots in the interim? I suppose the voyage to commence about February or March.—*S.*

ON A LIST OF FLOWERING SHRUBS AND ORNAMENTAL TREES.—You would much oblige a Subscriber and Old Correspondent, by obtaining, through the medium of your Magazine, the following information:—A list of flowering shrubs and ornamental trees best calculated "to face up" a shrubbery, with some idea of their price, where a good selection can be obtained, and particularising such as thrive best on a chalky soil.

ON A LIST OF STOVE AND GREENHOUSE PLANTS, ETC.—A Subscriber wishes also that you would mention (when better things are not abundant) the names of a few stove and greenhouse plants that, like the *Thunbergia*, do best in bog (not peat) soil, and whether you have tried the experiment of mixing old tan with the mould given to the *Hoya carnosa*, and with what success.—*Alpha.*

ON STOVE AQUATIC PLANTS.—A Subscriber would be obliged if some additional remarks (for the subject has been treated of before, but not much at length) were given on the cultivation of, and soil for, stove aquatics.

ON TULIPS.—A Constant Reader of the *Cabinet* wishes to ask some of the experienced Tulip-fanciers whether all the flowers broke from the same breeders take the same name with the first that was broken, or are they merely reckoned as different strains of the same flower. Is it the case that they are sometimes altogether different flowers? Having this season planted some celebrated named breeders, I am anxious to be informed as to this point; perhaps Mr. Groom would have the kindness to set me right in this respect, which would be esteemed a great favour by—*An Enthusiastic Tulip-grower.*

COMBRETUM PURPUREUM AND ARDISIAS. I shall take it as a favour if the Editor, or some correspondent, will inform me of the best mode of blooming the *Combretum purpureum*. The plant I have grows very strong, but never shows any appearance of bloom: it is growing in a stove at present. I am also desirous of some information on the *Ardisia*. I have seen less plants than mine loaded with fruit, but mine never has more than one or two fruit at once. The plant grows very well, and appears in good health.—*Juvenis.*

ON EVERGREENS, ETC.—Will some reader hercof oblige me with the names of a dozen of the best sorts of dwarf evergreens—say from one to three or four feet high—fit to make a small shrubbery at the end of a narrow slip of garden ground in Pimlico, mentioning the proper time to transplant them, and where they are to be got best? also if there are any gardeners that pay exclusive attention to growing evergreens, as there are some that grow Tulips, Pinks, Carnations, and Pansies?—*Henry Liddell.*

CULTURE OF HYACINTHUS PLUMOSUS AND IXLIS IN POTS.—I should be obliged if some correspondent would favour me, in an early number of the *Cabinet*, with a successful mode of treating the *Hyacinthus plumosus* and the various *Ixias*, when grown in pots for the greenhouse.—*A Ivelvemouth's Subscriber, Totnes.*

A SUCCESSFUL METHOD OF GROWING INDIAN AZALEAS.—Louisa would be glad of some hints on the management of Indian Azaleas, so as to enable her to grow them as fine as the specimens seen at the Exhibitions of the London Horticultural Society.—*Hants, December 12, 1855.* [Turfy, sandy, peat soil, not sifted but chopped, which has been laid in a ridge for six months, and about a quarter of rich loam, also kept rough, is a compost they delight in, using a free drainage. Care must be taken not to over-pot them, and to let the ball be highest at the centre, and be raised so that the water does not lodge about the collar of the plant, or the plant will be very liable to canker off. They should be repotted just before they begin to push in spring; when growing frequently be syringed over head, and kept in a temperature from 50 to 60 degrees. Have a liberal allowance of air and light, taking care they are not placed in a cold current, as

it often destroys plants so situated, especially in the early spring months. When done blooming, about the end of July, place them in the open air, where they will be sheltered, not under the drip of trees, but where they will have the full afternoon sun. Here they will require to be frequently syringed. At the end of September, having formed their blooming buds, they should be taken into the greenhouse, and be placed at the back part near to the glass. Some attention is required in forming a plant so as to have a nice leading stem, and to be clothed from the edge of the pot to the summit with a regular arrangement of blooming shoots. Occasional pinching off the points of the leaders or laterals will be necessary to effect the purpose, but with such attention any desired form is readily obtained. When required to bloom in winter or early in spring, it takes about five or six weeks from beginning to push till they are in bloom, and by regular introduction a constant succession from Christmas to July may be had.—*Editor.*]

A SELECTION OF CHOICE GREENHOUSE PLANTS.—Having just built a small greenhouse, I am desirous to make a collection of a few handsome plants, and have looked over your Magazine with that intent, but am unable to choose from so great a variety named, and am likewise ignorant whether they are easily to be procured, and at what price. Will you therefore be kind enough to give a list in one of your early numbers, with the price, and also of some handsome hardy perennials. By an early answer to the above queries you will much oblige—*A New Subscriber.*

ON GRASS SEEDS FOR A GRASS PLOT.—Having a grass-plot of half an acre in preparation, I am desirous of knowing what are the best kinds of grass seeds to sow upon it, and the proportions of each; an early answer will oblige.—*Tynemouth.* [In a former number of the *Cabinet* a list was given, to which we refer our correspondent. The following is an excellent assortment:—*Poa nemoralis*, 1 lb. *Poa nemoralis sem-pervirens*, 1 lb. *Festuca duriuscula*, 2 lbs. *Festuca tenuifolius*, 1½ lb. *Poa trivialis*, 1 lb. *Lolium perenne tenue*, 12 lbs. *Trifolium repens*, 4 lbs. *Trifolium minus*, 1 lb. *Cynosurus cristatus*, 2 lbs.—*Editor.*]

ON GROWING THE CAMELLIA IN HOUSE WINDOWS.—In a late number of the *Cabinet*, an Old Subscriber asks for information as to growing this beautiful plant in dwelling-room windows. Having for some time grown a number in my windows, which have done remarkably well, I feel happy to give him the information he requires. I should recommend him, as a beginner, to purchase his plants immediately, as the buds will now be well set; let him place them in those windows which have the best light, water them regularly, but take care not to make the soil over wet, as it would tend to cause the buds to fall off. Of course, they must be placed in such rooms as have constantly a fire through the winter months. After flowering, I move mine from the parlours to the kitchen window, previous to which I shift them into larger pots; by moving them in this way, I get the additional heat they need, during the season of growth and forming the flower-buds for the next season. I let them remain here as long as they are in a growing state, or until the buds are properly set; I then again place them in the parlours. During the time they are in the kitchen windows the leaves will collect the dust, which I recommend to be washed off twice a week with a sponge kept for the purpose; and in the summer months, at least once every week, take them into the garden and sprinkle well with a watering-pan. With respect to the sorts to be grown, I should say choose those which will make the best variety, as almost all sorts will grow equally well. I have a considerable number in my windows now, which have been treated in this way, and more healthy plants I never saw. The soil I use is composed of peat soil, mixed with white sand, sandy loam, and a little well-rotted manure. Should your correspondent require further information, I shall be happy to give it.—*Manchesterensis.*

CAMPANULA PYRAMIDALIS.—Seeing an inquiry in your *Cabinet* on the cultivation of *Campanula pyramidalis*, with a reply by Amicus, who advises slips to be taken off in the month of April, and having cultivated these plants for several years by a far different method, I therefore trouble you with a few remarks on that I pursue. As soon as the plants have done blooming, I immediately turn them out of their pots; the root I then break into as many pieces as I want plants; I then put five or six of the pieces into a 48-sized pot, which I about half fill with mould, then put in the pieces, and afterwards fill the pot with the mould. If I have the convenience of a frame or hand-light, after watering, I place it over them. In the spring (about March), I pot them singly, and so

let them remain during the summer in any cool part of the garden, where they grow vigorously. In the following spring I pot them into 24-sized pots. When I have the convenience of a light in a frame, or spare room in a greenhouse, I place them there till they have done blooming. Last season I cut a white one up this way, and I have now thirty-six strong, healthy plants for bloom next summer. I beg to observe, that if some of the largest pieces of the roots are selected, and placed upon any slight heat, they will bloom finely the following spring, the plants making their appearance through the mould in two or three weeks; or they may be increased in the way I have been mentioning, entirely in the open air, and when strong enough for bloom, brought into the apartment of a house. I pot in any common garden soil that is light.—*Walworth*.

LILY OF THE VALLEY.—If Lady Cecil's garden happens to be located near London, in a confined situation, or if the soil of her garden is *very rich*, or *very dry*, she may despair of blooming this plant. The converse of these will, no doubt, have the desired effect.

COMPOSTS.—If H. S. procures good loam, very rotten horse or cow dung (quite mould), silver or white pit sand, and peat or heath mould, he will have all the ingredients necessary for composts for almost every plant that grows. The proportions must of course be adapted to the nature and necessities of each particular plant.—*Amicus*.

RAISING CARNATIONS FROM SEED.—Observing, in your *Cabinet*, that several of your correspondents solicit some information on raising Carnations from seed, I am induced, as a tolerably successful cultivator of that delightful flower, to offer a few remarks. Experience has proved to me the error of sowing seed from self colours, or those possessing bad properties, as, by repeated trials, I am satisfied that the only chance of obtaining superior flowers is to sow *your own* seed, produced from those acknowledged to be first-rate. The course I have adopted, and which I recommend, is, when the petals are dead, to pluck them out of the calyx, or cup containing the seed-vessel, leaving the two styles, or what are generally called the horns; by removing the former, the pods are kept dry, and more exposed to the sun and air; they should at all times be protected from rain, by placing over them the shades used at the time of blooming; and care should be taken that the vessels wherein the legs of your platform stand are constantly supplied with water, to prevent the approach of those nocturnal enemies—earwigs. When the seed vessels become hard, and present a brown appearance at the tip, they should be gathered, and in that state preserved, in a perfectly dry situation, until the following April or May, which is the period for sowing in pots or boxes filled with rich loam, taking care not to cover the seed more than a quarter of an inch; give them a slight watering before they are plunged into a hotbed of about sixty-five degrees; occasionally moisten the surface with soft water, of the same temperature as the air in the frame; and as soon as the plants appear, admit the air freely during the daytime, to prevent their being drawn up. When about three inches high, transplant into larger pots or boxes of rich turf-mould, five inches apart; place them in a southern aspect, at first protecting during the nights with matting, and applying moderate light watering in dry weather; but invariably avoid wetting the plants, as too much moisture frequently decays the hearts of the shoots, and prevents their blooming the second year. In about six weeks again transplant them, a foot asunder, into beds prepared of good sandy loam, mixed with rich garden-mould; keep the beds clear from weeds, and water copiously in the evenings during the summer. By adopting the above course, the plants will be found exceedingly strong towards October, and require little or no protection in the winter; but should any appear particularly weak and unhealthy, take them up, and after examining the roots, which is generally the seat of disease in plants, replant them in a different compost, and during the severe weather protect with pots raised about two inches upon pieces of tile. I have always found a long bed in the centre of a grass-plot, about three or four feet wide, so as to admit of two or three rows, by far the best situation for seedlings, being more easily protected, when necessary, by mats or hoops, and decidedly less liable to be injured by snails, etc. In the following April let the beds be well cleaned, and the surface carefully loosened, to receive a thin top-dressing of rotten manure, the application of which will be found materially to renovate the mould, as after so many months it necessarily becomes much impoverished. I am not, however, an advocate for planting seedlings in very rich compost, as it is much more practicable by cultivation to put colour into a flower, than to extract it. When the shoots are

grown about a foot high, they should be supported by sticks; at this time they will also require to be frequently watered; and as they bloom, pull up all that come decidedly bad; the best, of course, should be piped or layered at the proper season. Some persons sow the latter end of May, allow the pots to remain in the open air, and prick the plants out at once into beds. The disadvantage of this system is obvious: for, in the first place, they do not come up so soon; and, secondly, when planted in beds at so tender an age, they are rendered more liable to be destroyed by worms and slugs. As regards impregnating Carnations, I am of opinion, with many others, that the bees and insect tribe execute that work much more effectually than can be performed by the hand.—*J. W. C.*

LUCULIA GRATISSIMA.—In a recent number, I observed a Lady Gardener asks for instructions relative to the successful treatment of this unrivalled autumn and winter flowering plant. Two years ago I planted a small plant in the border of a conservatory, into which abundance of air is usually admitted, and which is kept at a very low temperature; indeed, little artificial heat is employed beyond what will exclude frost, and the thermometer has frequently been as low as 36° Fahrenheit. The dimensions of it now are, height seven feet, diameter (measuring through the branches) five feet six inches; diameter of a cyme of flowers seven inches. The border in which it grows was excavated two feet deep, in the bottom of which is a drainage composed of brickbats and coarse rubble, six inches thick; immediately over this were put turfs of heath-mould, rough from the common, upon which again is placed the compost, consisting of one-third strong rich loam and two-thirds sandy heath-mould, coarsely broken and well blended, but on no account screened. I consider this drainage very important to *plants in general*, and absolutely indispensable for *Luculia*, the complete success of which will materially depend upon this being attended to. During the summer and early autumnal months water requires to be freely supplied, and the *under* surface of the leaves, as well as the whole plant, repeatedly washed with the fine rose of the syringe, because being subject to the attacks of red spider, which I need hardly observe will, if undisturbed for any length of time, greatly injure it. Occasionally some liquid manure was applied, but this requires caution, and must not be repeated too often, and not at all after the summer season. The general waterings must also be gradually diminished in September, and afterwards administered very sparingly, for the fine fibrous roots are easily injured by too much moisture. Under this easy management *Luculia* is a splendid plant, covered with large cymes of beautiful flesh-coloured fragrant flowers, which continue in perfection during the dull months of November, December, and January. Its foliage, too, is luxuriant, dark, and green, and contrasts admirably with the large, bold heads of flowers. Persons desirous of successfully cultivating this beautiful plant, should observe that it requires a much *cooler* treatment than it generally receives. When grown in a pot, it must not be excited by *high* temperature in the spring and early part of summer, it must *then* be kept in a greenhouse. At the end of May and early in June it should be turned out into the open ground in a *warm situation*, rather sheltered from the sun, and in September be taken up, repotted, and placed in a vinery or coolish plant-stove. It will then grow freely and form its heads of flowers, which will expand their beauties and diffuse their fragrance through the winter. It is a good plant to flourish, when in bloom, in a sitting-room. Whether grown in the hothouse or open air it requires some portion of shade. It is one of the finest winter plants in the country, and deserves a place in every conservatory or greenhouse.—*John Spencer.*

ON SOWING SEEDS.—All seeds, except annuals, from the plants which are natives of California and North America succeed best when sown in autumn, as soon as they are ripe, and those from Chili and Mexico when sown in spring. The seeds of the shrubs and trees of North India and Europe in autumn, and annuals and perennials in spring. In order to succeed in raising plants, sow in dry soil, and give no water till the seeds vegetate; seeds are often destroyed by giving water when just sown, especially with old ones, they immediately rot; better shade from sun than give water. Having had considerable practice in these matters, I give the result of the facts of a twenty years' practice as foreman in one of the first London nurseries.—*W., St. John's Wood Road.*

TO DESTROY MOSS ON GRASS-PLOTS.—(To A. B.) Pure gas-water, diluted by double the quantity of water, poured over a grass-plot injured by moss, effectually destroys it, and in no degree hurts the grass; or nitrate of soda spread over it, in the

proportion of two stones to a rood of ground, is equally efficacious. To succeed the best, neither of them should be applied in *hot* weather, nor when there is *much* grass.
—*A Constant Subscriber.*

HOYA CARNOSA.—If your correspondent, L. B., wishes to have a good-sized plant, without much trouble to himself, I can tell him a plan I have for years adopted. I have taken off a shoot a yard and a half to two yards long, planted it, in a small pot, in sand and moss, in which it has rooted immediately, and bloomed the same season. The moss must have a plentiful supply of water.—*W. Williams, Manchester.*

NOTES ON NEW AND SUPERB PINKS MADE LAST YEAR.—*Colchester Cardinal* (Norman).—Although below the average size, its properties are of that sterling and refined character that it may be fairly designated the “*mulum in parvo*” of a beauteous tribe, and a variety no cultivator, assuredly, should be without. In colour it is a rich crimson, petal extra smooth, and lacing broad and well defined. *New Criterion* (Maclean).—A glance at this newly introduced and estimable flower will not be thrown away, if you delight in properties of the most exquisite and refined character; in fact, it is a star of the first magnitude. Combined with a large and nicely rounded petal, will be found the sweetest and most unique style of marking imaginable, whilst a happy contrast of colour, in a class where too much sameness prevails, is another recommendation. Its lacing is a rich rosy purple, assuming a deeper yet pleasing tint as the flower ages. It is indeed an acquisition, and if absent from any competing stand, a point of vantage will be thrown away. *James Hogg* (Bragg).—Mr. Bragg has here presented us with an extraordinarily fine specimen of the pink, one in which a real advance towards perfection may be observed. The petal is of superlative form, laced with a distinct and even band of a dark chocolate colour. In this gem may be found nearly every good property a flower can possess, and it is clearly one of those varieties which deserve a place in every collection. *Adonis* (Maclean).—This appears to be of delicate habit, and will require the highest skill of the cultivator to do it justice, although it has the advantage in size of petal. It forms an excellent counterpart in colour to *New Criterion*. I am inclined to think that the same pod of seed produced both sorts; and if I mistake not, some splendid seedlings will be produced by judiciously crossing this useful flower. *Brunette* (Maclean).—This variety lacks the excellent properties so conspicuously prominent in Dr. Maclean’s seedlings. The lacing, although of a fine dark colour, is much too heavy, and its style of marking is irregular. It may possibly be brought out in showable condition; but even then the primary points of attraction will be wanting, and it must materially improve before I can consider it entitled to a place among the select, a position I unhesitatingly accord to the others herein described. *Richard Andrews* (Turner).—This variety possesses some fine attractive points, and is well worth inquiring after; the lacing is bold and distinct, and the ground-colour of a lively hue. It is altogether a very pretty sort. *Mr. Hobbs* (Looker).—This variety must not be lost sight of; it possesses a good petal, with an attractive style of lacing, which is evenly laid on, and is of a good dense colour. It will bear scrutiny. *Richard Smith* (Looker).—This pink ought to be more generally cultivated than it is at present; but probably its propensity to burst deters some from growing it. I would, however, find room for half a dozen plants of this variety, rather than forego the chance of obtaining a perfect specimen. When well bloomed it is a clipper. Its habit of growth is very straggling. *Field-Marshal* (Hales).—A majestic flower, certainly, growing to a large size, and lacing very steadily. It has a broad band of lively rosy purple lacing, and is also an excellent grower. Though a full-podded variety, it may be easily bloomed, and flowered with me very fine last season. Of the new sorts coming out, if report speaks true, *Mrs. Norman* (Norman), *Mrs. Stevens* (Looker), and *Peter Young* should be added to all collections; and to the raisers of seedlings, I would direct special attention to *Great Criterion*, from the circumstance of it being rather a thin flower. Amongst the older varieties, *Sir Joseph Paxton* (Bragg), with its finely formed petal and showy red lace, and *Purple Perfection*, which, if there is anything in a name, is entitled to its full share of notice, are two flowers of the right stamp, and should be sought after. *Perfection* (Turner), is a chaste and refined sort; *Harry*, a large flower, but rather inclined to coarseness; and *Sarah*, when well grown (and it must be so grown to be seen in perfection), is a sweet variety. To these I must add his *Optima*, a well-known and inviting sort, though

somewhat difficult to manage. These must not be lost sight of. *Narborough Buck* (Maclean), a noble flower, but hard to keep from flushing, and his *Criterion*, known to almost every grower of the Pink, are sure to be found in general cultivation. *Bisabeth Gair* (Lightbody).—A crimson-laced variety; has some points of great refinement about it, and appears very smooth. It shows a slight disposition to reflex, but in the face of this drawback has a decided advantage over many sorts deemed worthy of cultivation. *Maritana*, by the same raiser, is a showy red-laced flower, but lacks the sterling properties found in the preceding. *Theresa* (Marris).—A fine large back-row flower, with smooth, but rather narrow petal, is a remarkably steady lacing flower; and *Geraldine*, another bantling of mine, a smaller variety, with lacing of a peculiar shade of purple, will be found eligible for the front row. *Laura* (Wilmer), is much too early, but if grown strong, and the earliest flower-stems cut away, this good old variety may be brought out in fine style; whilst *Sappho* (Colcutt) can yet be brought out in all its glory. To the varieties here enumerated, add *Ada* (Read), *Lola Montes* (Costar), and *Fanny* (Hardstone), with *Ganymede* and *Sir Charles Napier*, two of Mr. Looker's flowers, which, though bloomed by me under circumstances much to their disadvantage, exhibited such points of excellence, that I think they will force their way to fame—and I think, on the whole, there will be found concentrated such an array of good qualities as, with ordinary pains, cannot fail to ensure success to the cultivator for competition.—ROBERT MARRIS, *Leicester*. (*Gossip for the Garden*.)

CULTURE OF BRUGMANSIAS.—The treatment must vary according to the *time* it is desirable for them to be in flower. Supposing your plants flowered in the autumn, or at the beginning of winter, the falling of the leaves told you the plants wished for a rest. The heat was quite sufficient to keep the plants healthy. The points of the stems dying would merely show that the points there had hardly been ripened. When resting, and all the leaves, or nearly all, are fallen, Brugmansias scarcely require any water. They are so accommodating, that they will thrive in your hotbed, and thus you will have shoots and flowers early; or, if you choose to wait longer, you may keep them in the greenhouse, potting and growing on, or turn them out-of-doors, in rich soil, in June, when they will bloom in the autumn out-of-doors, and in the first part of winter, if raised carefully and repotted. Supposing, now, that you fix upon the height of your stem—and recollect that the bloom is produced on the young shoots of the current year—all that you have to do is pruning so as just to leave as many buds as you wish for shoots, and when these have grown sufficiently you will have flowers, provided the stem-buds were matured enough, and rising two or more years in age. When an old plant is obtained, all that is wanted is to snag in the head well back every year.—*Cottage Gardener*.

TWELVE BEST NEW DAHLIAS.—In the December number of last year, I observe lists of new Dahlias by Mr. Glenny, and others, are given. The following I have seen repeatedly during the past season, at the various *Exhibitions*, and private Meetings, in and around London, and I am confident they are *the best*, among about one hundred varieties, that were shown for the first time, and which are to be sent out the ensuing spring. Their respective superiority is according to the following rotation, viz.:—1st, *Bessie*, a deep yellow; 2nd, *Perfection*, good orange colour; 3rd, *Mrs. Wheeler*, a deep scarlet; 4th, *Duchess of Wellington*, pale cream colour; 5th, *Lollipop*, salmony-buff; 6th, *Miss Burdett Coutts*, fawn colour; 7th, *Yellow Beauty*, a bright yellow; 8th, *Grand Sultan*, dark maroon shaded; 9th, *Lord Palmerston*, rich scarlet; 10th, *Shaded Model*, orange shaded with buff; 11th, *Eclipse*, dark purple maroon; 12th, *Chameleon*, yellow edged with lake.—*A Londoner*.

UNIVERSAL COMPOST.—Turf cut from an old loamy pasture, such as used to lay down for lawns, about three inches thick, and laid in a heap to rot, is invaluable. This rubbed through a sieve that would let a hazel-nut through, two barrowfuls; *peat earth*, full of fibre of a spongy light nature, used for heaths, half a barrowful; and *cowdung* rotted into mould, half a barrowful, with a sprinkling of *white sand*, and small pieces of *charcoal*, well mixed together, form a compost for almost everything.—*G. Glenny*.

PROTECTING TENDER KINDS OF ROSES.—Some of the tenderest Standard Bourbon, Noisette, and Tea-scented Roses require winter protection. The best plan I have found to succeed is to prune in the head as desired, and then spread among the shoots branches

of furze, securing them with tar band. This covering is such that it protects wholly from injury, and at the same time admits sufficient air to prevent the too early pushing of the buds, which, if not done, they would be liable to be damaged by early spring frost. I take off the covering about the first week in March. For dwarf plants I stick furze branches into the ground, and secure them at the place by a few sticks put round. Over the roots I lay about six inches deep of dry leaves, covering them over with a sprinkling of soil, sloping to the sides, as the Editor recommended for Fuchsias, etc.; this entirely preserves from injury.—*Rosa*.

THE DEODAR, OR HIMALAYAN CEDAR (*Cedrus Deodara*).—Its botanical range extends from 7000 to 12,000 feet above the level of the sea; and in its most congenial locality attains a great height, and a circumference of above thirty feet. When young it closely resembles the real Cedar, but never sends forth spreading branches. The cone resembles that of the Cedar, and is preceded by a catkin of a bright yellow colour; so that the tree, when in full blossom, appears covered with a rich mantle of gold. These catkins are loaded with a golden dust, which the wind shakes from the branches in such quantities that the ground, for a considerable distance about the tree, becomes as it were sheeted with gold. So durable is its timber, that some used in the building of one of the wooden bridges over the Jaillam was found little decayed after exposure to the weather for above 400 years.—*Thornton's Gazetteer of India*.

OXALIS BOWEIANA.—Early the last spring I had two dozen plants of *Oxalis Boweiana*, and wanting something pretty to fill up a flower-bed in a warm situation in the flower garden, I resolved to make a trial with them. I turned them out as entire as possible the first week in May. They have flourished amazingly, and bloomed in vast profusion till November. The lovely rose-coloured blossoms producing a fine effect.—*Louisa*.

TO TAKE IMPRESSIONS FROM LEAVES.—Take green leaves of trees and flowers, and lay them between the leaves of a book till they are dry. Then mix some lamp-black with drying oil, and make a small dabber of some cotton wrapped up in a small piece of leather. Lay the dried leaf flat upon a table, and dab it very gently with the mixture till the veins of the leaf are covered; being careful not to dab it so hard as to force the colour between the veins. Moisten a piece of paper, or, what is better, lay a piece of paper between some sheets of moistened paper for several hours, and lay this over the leaf that has been blackened with the liquid, press it gently down, and then lay a heavy weight upon it, and press it down very hard. By this means you obtain a very beautiful impression of a leaf with all its veins; even the minutest will be represented in a more perfect manner than they could be drawn with the greatest care. Impressions thus taken may also be coloured in the same manner as prints.

TO DESTROY RATS OR MICE.—"I was advised," says a correspondent, "to cut cork into *thin* slices, and then fry them in fat, butter, or meat gravy; the animals are very fond of them, and eat them greedily; placing the pieces for a repast, the pests in a garden soon disappear. Of course, the prepared pieces must be secured from cats, dogs, etc., or they may fall a sacrifice too. I was told that to use brown paper fried in fat, etc., would effect the same purpose as cork. I have not had occasion to try it since obtaining information."

HOW TO DESTROY THE RED SPIDER.—This pest in gardening is assuredly not so commonly met with now as it was twenty years ago. And why? Not because any recipe has become of general and systematic application, but that a much greater humidity of atmosphere is maintained in our hothouses than in former days. Humidity alone is not, however, sufficient at all times to keep the spider under; and I beg to remind the readers of the *Cabinet* that sulphur rightly applied, in conjunction with atmospheric moisture, is perfectly efficient to that end. Apply it three times a year on an under pipe, or on the least heated portion of a flue, thick as paint, and worked up with soft-soap water to make it adhere for some time. Do this in February, in May, and again in August, and maintain a wholesome amount of atmospheric moisture, not a sudden steam, but a slow, yet permanent supply, and I will engage that the spider will be rendered perfectly harmless. Do not, however, apply it on any surface that is so warm at times as to produce inconvenience to the hand when grasping it; this is a simple but safe rule.



AMPHICOME FMODI

The Floricultural Cabinet.

M A Y, 1856.

ILLUSTRATION.

AMPHICOME EMODI. Nat. Ord. *Bignoniaceæ*.

THIS very handsome flowering plant is a native of Northern India, discovered growing upon the mountains of Emodi, near Srinaghur, and on the Suen range of hills. Seeds of it were sent in 1852, by Major Vicary, to the Royal Gardens at Kew, where, in a cool frame, plants bloomed last October. It is an herbaceous perennial plant, the stems dying down every year. It grows from one to one and a half foot high, branching, growing very freely, and blooming profusely.

No doubt, this species will flourish in the *open ground*, in the warmer parts of our own country, and will be one of the neatest and handsomest ornaments of its size that the flower garden contains. It is increased by division, as well as by seed, and highly merits a place in every flower garden, cool frame, or greenhouse.

THE PRESENT TASTE AND STYLE OF ORNAMENTAL GARDENING.

BY A BRITISH PRACTICAL LANDSCAPE GARDENER.

As gardening was one of the first, so is it one of the most delightful occupations of man; it contributes to his necessities as well as to his comfort and pleasure. The cultivation of salutary herbs, and grain, and food for diet, was necessary to his existence; and that of flowers for their scent and beauty, and of trees for shade and shelter, was an equally necessary accompaniment. Hence the calling became divided into distinct branches, namely, kitchen, fruit, flower, and ornamental gardening. The two first, though of most real utility, are considered subordinate to the two last, more especially the last of all, which has been dignified by the title of "*landscape gardening*."

The term has been borrowed from that given to any prospect of a country, but particularly from those works of art depicting wild or ornamental scenery, called landscape paintings, representing any space or region of a country, with its various objects.

The first ornamental gardens of which we have any good account were regular enclosures, with everything they contained arranged most symmetrically, justifying the often-quoted sarcastic couplet of our poet Pope:—

“Grove nods at grove, each alley has a brother,
And one-half the lawn but just reflects the other.”

This rectilinear and rectangular style of gardening was, however, quite natural to man in the earlier ages of the world; he saw Nature in all her wildest forms around him, and, as lord of the creation, he felt a kind of instinctive desire to bring her under his control; he wished a contrast and a disposition of his trees, and boundaries that would mark or secure his possessions, and at the same time exhibit his skill as well as his sovereignty. Art was then his idol, not Nature; and everything he did was to show how much the latter was under his dominion.

This artificial style of gardening continued to prevail in every civilized country, from the earliest times till after the beginning of the eighteenth century. Before this epoch, Le Nôtre, a French garden architect and ornamental gardener, was extensively employed in almost every nation in Europe; and some portions of his designs are still to be seen in France, and many imitations of them everywhere, as well in this country as on the Continent.

While Le Nôtre and his contemporaries were driving every trace of Nature from their garden scenes, the painter was at the same time enthusiastically engaged in studying her in her wildest forms, and copying every incident in real scenery which would improve his studies or enrich his pictures.

Before the period to which we are alluding, many eminent painters had immortalized their fame by the beautiful landscapes which they had painted. Among the celebrated paintings, it is remarkable that very few trim garden scenes were represented, especially as the artists, both gardeners and painters, were probably admirers of each other. This, however, is only an instance of how much the human mind is liable to be enchained by custom or reigning fashion. The idea had not yet been entertained perhaps, that the principles of ornamental gardening and landscape painting are the same, for, in practice at that time, the artists took directly contrary routes: the painter studied nature only, while the gardener busied himself in cutting and slashing vegetation into all the most fantastic regular figures his ingenuity could invent. Geometry, with its lines and rules, was his text-book; without this he could not trace a line, or prune a tree, or trim a hedge. On the other hand, Nature, in all her varied forms, and habits, and hues, was seized and imitated by the

painter, tracing her on the mountain steep or in the secluded dell, by the sparkling river side or on the banks of the placid lake.

Thus, at one time, were painters and gardeners employed, both occupied in arranging the same objects; the one forming real, the other pictorial scenery, but with very different views: the first was enamoured of "neglect and accident;" the other seriously annoyed if a single leaf projected from the smooth surface the shears had made.

The love of gardening and of fine pictures, however, kept pace with each other, and were often united in the same cultivated mind; indeed, we seldom meet a virtuoso who is not equally enamoured of all the fine arts. Both gardeners and painters were employed in the embellishment of regal, noble, ecclesiastical, and manorial residences. While the exterior was graced and adorned by the former, the interior was decorated and enriched by the latter. The painter's landscape at last "bore away the bell;" the admirable scenes presented on canvas were extolled by every unsophisticated eye, and merely because they were more true to nature; and when compared with the most laboured garden dispositions, the latter sank in public estimation, and was soon followed by the cry—*Why is not every gardener a painter?*

This impression was so strong after the new light broke in upon the minds of the *cognoscenti*, that Kent, a painter by profession, was actually induced to become a landscape gardener. His new task was not a pleasant one; he aimed at producing immediate effect, as he used to do in his studio; but this was impracticable, as he found he must wait many years before he could possibly see the full effects of his dispositions of trees, shrubs, etc.

The first attempt by Kent was certainly a failure, because, in straining to do on the naked lawn what is so easily done on canvas, he made himself ridiculous, by planting dead trees, and several other freaks, which, however objectionable as the effects of time or accident in real scenery, become quite ludicrous if imitated by art and labour.

But as many places at that period were capable of great improvement by merely clearing away redundant growths, the painter's ideas were in such cases highly valuable, and their assistance was duly acknowledged; and consequently improvement by abstraction, or simple clearing away, became the rage. Hence a reformation (by far too radical, however) took place. Every connoisseur wondered how the contracted ideas of the gardener could have been so long tolerated; a kind of remorse was felt that the visual enjoyment of real pictures should have been so long withheld; a sweeping sentence of condemnation was instantly pronounced by the arbiters of fine taste, and open war was declared against every right line and right angle, and against every perpendicular form of Dutch or Italian gardening.

Soon were the venerable avenues uprooted—the airy terrace and the verdant slope levelled with the general surface of the ground; every nicely clipped hedge or arcade, pyramid or globe, were quickly

banished from the lawn and gardens; right lines, whether of roads or walks, or fences, were diverted into regularly flowing sweeps; the mansion which had been for years partially shaded and veiled by trees, was set out and exposed on a smooth and closely shaven lawn: hedge-row trees were exchanged for insulated clumps dotted over hill and dale; and straight and visible fences gave way to crooked and invisible ha ha's!

Thus the regularity of the old style was excluded, to admit the irregularity of the new; a change too recklessly made, and which has proved, in many instances, only a change from one kind of sameness to another fully as tedious and uninteresting.

Nor was the new style an imitation of what it was presumed to be founded on—namely, the painter's ideas of the most beautiful or most picturesque combinations of land, wood, and water. The opinion of the first reformers appeared to be, that to depart as much as possible from the old style, by introducing irregularity, was all that was wanted to give the new scenery a truly natural character.

The new style received the title of "English gardening;" and certainly there were some very perfect things of the kind executed in different parts of the kingdom, not, however, by clearing all the old features away, but by a judicious reservation of part of them, and not by an implicit adoption of every suggestion of the reformers, but by a tasteful rejection of many of their dogmas.

It is perfectly true that, though the guiding principles of composition of both the painter and the landscape gardener are the same, there must necessarily be a great difference in the execution; the one endeavours to gratify the present, the other future generations. The painter can brighten his lights, deepen his shadows, give play to his outlines, and mellow his tints at pleasure, so as to preserve a well-balanced display of light and shade; all his objects, whether on the foreground, in the middle distance, or in the off-scape, he can dispose as seems to him best. The height and distance and form of the mountains, the character and extent of water, the very forms of the clouds and tints of the sky are all as his fancy or taste suggests. And neither is the painter confined to the real character of the trees, and shrubs, and herbs which he introduces into his picture; a burdock, or other monstrous weed on his foreground, answers his purpose as well as the finest plant in cultivation. Such worthless plants in a painting give no offence to the beholder in any way; and, moreover, the rudest, wildest scene may be preferred for the canvas, but which is seldom or never required to be, nor indeed ever should be, formed by the gardener, because the most trifling mark of art about such a work robs it of every charm which it would otherwise possess.

The landscape gardener arranges all the ornamental planting of the park, and particularly near the house. Here comfort, convenience, cleanliness, and every other sign of high keeping and art must prevail; here all the taste and skill of the gardener should be displayed; here his ideas are peculiarly applicable; and when those foreground dis-

positions are fixed, he has to design and connect the scenery of the park therewith, and that of the surrounding country with both.

In the execution of all this the most refined taste, united with a large share of practical, botanical, and arboricultural knowledge, is absolutely necessary; and in this it is said the professional ideas of the painter would be available. Let us suppose, then, that a Claude Lorraine were engaged with the gardener in laying out an English garden; the trim neatness, smoothness, and regular edges of the walks and borders of the latter would offend the eye of the former, who would rather see roughness, intricacy, and indistinctness prevail. This, however, would not be suffered near the abode of refinement and affluence; but the painter would advise the gardener to conceal his hard lines; to break the uniformity of the clumps; to give variety to the masses of planting, by associations of trees and shrubs of different tints and character; to place on the foreground the strongest growing herbs, the coarsest featured shrubs, and the quickest growing trees to flank the vistas which he would wish to have extended across the park, or which would let in distant objects of interest in the country beyond. The painter would also advise but few single trees to be planted, without having a few shrub-like growths near their base; and also that all clumps and groups should be of one kind of tree, irregular in outline, and intermixed with under-growths, to creep out on the turf around them.

If water entered into the composition, the painter would advise it to be disposed in its natural place—the lowest ground; and whether a lake or river, he would have it as unlike a canal as possible. The natural abruptness of the banks he would preserve, as well as all their sinuosities and overhanging trees and bushes. Nor would he be anxious to expose too much of the water in one place, unless it would appear as a reach, either advancing towards or receding from the eye, for the sake of the reflections from the ripple on its surface. If a lake, he would choose to have it of a very irregular shape, and as much diversified by trees and islands as its size would allow, carefully masking its extremities, if such were too visible.

If buildings of any description, either for use or ornament, were in the landscape, the painter would advise them to be partly concealed, and only allowing the most ornamental or characteristic angle to jut out from among trees. If the park was of a finely undulating surface, consisted of smoothly rounded knolls, with winding dips between, the painter would adapt the forms of his groups and thickets, and the characters of the trees to correspond. On the other hand, if the environs presented strong natural features, as cliffs and rugged declivities, deep ravines forming the beds of mountain streams, etc., he would add such accompaniments of vegetation, alpine and aquatic trees, etc., as would harmonise with the general aspect of the place, so as to produce (whatever may be the character of the district) a well-connected and harmonious whole.

Now if all this would be advised by a painter, or an amateur having

DESCRIPTIVE REMARKS ON FLOWERS.

a "painter's eye," it differs not a jot from what would be done by every landscape gardener who knows his business, or who deserves the name. Hiding the hard lines in the dressed ground, and employing more under-growths among the trees in the park, are the only additional amendments in the common practice which the painter could recommend in laying out a park in the English style. He would also object to any great extent of lawn being seen from any principal station, because nothing is so horrifying to a painter as great blotches of any one colour on the canvas, without chequering of shadows, of flocks or herds, or of other objects admitting variety of tints; and therefore a park laid out by a painter would be rather a series of diverging glades, than a park dignified by the grandeur of its vast masses of wood and its expansive extent of verdant turf.

That many of our parks, laid out in the style last alluded to, are lifeless and uninteresting, must be acknowledged. In passing through them, though they may have an air of grandeur suitable enough for a regal or ducal palace, yet no part of such scenery would be admired by the painter, because wholly unfit for the canvas. Hence it may be inferred that an English landscape gardener's park may be very suitable for a residence, and yet by no means equal to the *beau idéal* of a connoisseur, who may be blessed or plagued by possessing a painter's eye. Still it is very possible to bring the extremes nearer together; to diversify and enrich the naked tameness of the "capability" style; and to soften the asperities, and qualify the exuberance of imagination observable in some of the most celebrated paintings. I intend to continue the subject in future numbers of this Magazine.

DESCRIPTIVE REMARKS, ETC., OF ANCIENT WRITERS ON FLOWERS.

BY A VETERAN GARDENER.

THOUGH an elderly person, I have no prejudices against modern improvements, but, on the contrary, rejoice to hear of every new discovery in any art or science, yet may I not be permitted to retain some respect for antiquity, while Virgil's Georgics are still allowed to give useful hints upon farming and on the management of bees? for nature is the same in every age, and the wisest of men has said, "that there is nothing new under the sun." We should not therefore conclude that this generation alone has cultivated flowers successfully, nor implicitly believe, with the writer of an article in a late number, that there were not many handsome double Pinks before the year 1772, as I find described in Parkinson's work, published before 1656, several beautiful Carnations which we have lost; and he says of Pinks, both double and single, "the number was so great, that to give descriptions of them all were endless." When a child, I often gazed with admiration on the flower pieces painted some centuries ago,

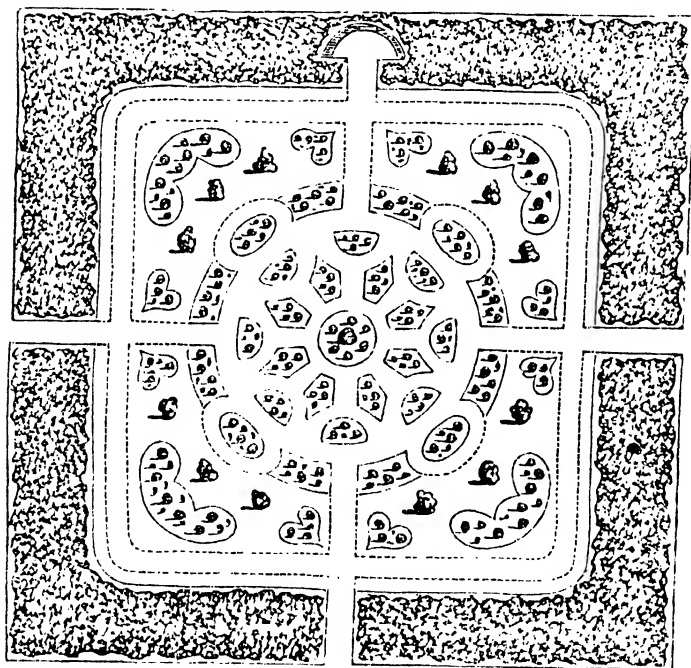
where magnificent Carnations were often the most conspicuous objects; and, though innumerable plants of every kind have been introduced into Great Britain lately, or increased by hybridizing, it must be admitted that most of our *sweetest flowers* were cultivated by our ancestors, and that much information concerning them may be gathered from old authors. From my childhood the Carnation has been my favourite flower, and since the first number of your interesting Magazine I have watched for every article respecting it; but I found there nearly the same treatment recommended—mixed composts and frames for protecting the plants during winter; but all cultivators of Carnations have not frames for every plant of Geranium, Auricula, or Carnation they wish to shelter, nor have they time or patience to wait till the wire-worm has been banished from their newly mixed composts. The most enthusiastic lovers of gardening are not always the most wealthy; to such alone my hints may be useful. I have often witnessed, in spring, the death of many a valuable plant of Carnation which had appeared in vigorous health in autumn, till I suspected, from observing the flourishing appearance of plants of the same kind, growing in the common borders of my kitchen garden, that mixed composts were to be dreaded.

I found from experience, that the common soil of my garden, where cabbages had been planted the year before, mixed with sand, was the only safe soil of which I could make beds for my Carnations; I had too many to keep in frames. I learned from Parkinson, that what I was chiefly to guard against were “the bitter, sharp winds in March;” and I learned also from him that I ought to protect my plants with basket-work, or anything else ingenuity suggested, without covering them. A very old experienced gardener taught me not to remove the stakes to which they had been tied during the summer, and not to throw away nor transplant my old plants, otherwise I might gather no seed the following year; as layers of a year old seldom perfected their seed. From Parkinson I had learned that “the best, fairest, and most double flowers” came from those flowers which were “best, fairest, and most double,” and yet it is often said that it has only lately been discovered that seed can be obtained from some of the finest Carnations. In light, dry soil, indeed, in a situation where the sun has great power, the pods seldom swell; but in a soil like that of my garden, rather retentive of moisture, and not too much exposed to the mid-day sun, many of the pods of my Carnations swell every year, and by taking off the entire stalks and placing them inverted in a thin paper bag, in a sunny window, without examining them too closely, I have the pleasure in the following spring of shaking out of the withered pods innumerable seeds, the stalks of the plants having afforded the pods nourishment till the seeds had ripened; and I can show every summer such a collection of beautiful Carnations as might satisfy any person not ambitious of gaining the first prize at a flower show, though I suspect that I might sometimes have gained it. I always surround my plants with dry turf-mould in winter, which effec-

tually preserves them from frost ; if possible, snow should not be left on their leaves for the sun to melt.

I was much amused one severe winter day at seeing my very old infirm gardener, followed by two boys with little sticks in their hands, beating off the snow from a variety of valuable evergreens with which my house was surrounded. His occupation appeared to me very childish, but the following spring, when my neighbours had lost innumerable evergreens, scarce a withered bough, it was observed, was to be seen on mine ; and as I felt then a great respect for age and experience, I hope that you will not despise these hints from—*A Veteran Gardener.*

DESIGN FOR A FLOWER GARDEN, BY T. RUTGER, ESQ.



THE flower garden herewith delineated is supposed to be enclosed within a shrubbery, with three entrances, and an alcove at the further end. The clump in the centre may be changed to a pond and fountain, if a due supply of water be available.

OBSERVATIONS ON A BED OF CARNATION POPPIES.

BY A TOURIST.

LAST summer I was on a tour through Lincolnshire and Yorkshire, and in the neighbourhood of Louth I was much pleased with a bed of beautiful Carnation Poppies. The bed was on a lawn, round, and about twelve feet across. It was raised to the centre; and the culture of the plants was so managed, that near the side they were in profuse bloom, and only about a foot high. On inquiry, I found it was effected by the following treatment:—The bed was enriched with vegetable mould at the centre, and gradually allowed to be less enriched to the side, a foot of which at that place was a very poor gravelly soil. The bed being six inches lower at the side than the grass, the flowers were about six inches above; and the growth being regulated as above described, the flowers formed a cone of most striking beauty. The admirable silky delicacy of the petals, their beautiful and varied colours, of scarlet, rose, pink, white, lilac, purple, striped, mulberry, and black, and consisted of *double* as well as single flowers, produced a most enchanting effect. So highly did the object gratify me, that I presumed to apply for a portion of the seed, though an entire stranger at the place; a promise of which I had given me, and which now has been realized. When I have had an opportunity of growing them, I shall be glad to send some (as they produce seed in such quantities) to the Editor of the *Cabinet*, for those readers of the work who may desire to have a portion. The same kind of poppy can be had of the general seedsmen in London and country, but not perhaps in such a beautiful variety. Those I saw blooming had been raised from selections made during several years; and far exceeded all I ever saw before. It is certainly worth while to procure some of the seeds, being so very cheap, and adopt the plan I describe, I have pleasure in strongly recommending it to the readers of the *Cabinet*. The situation selected was a sheltered one from mid-day sun and west winds, which afforded a protection to the delicate petals, that are somewhat liable to injury by their strong operations upon them.

CULTURE OF PELARGONIUMS FOR EXHIBITION.

BY A SUCCESSFUL EXHIBITOR AT THE LONDON SHOWS FOR TEN
SUCCESSIVE YEARS.

NOTICING several queries and remarks in the *Floricultural Cabinet*, on my plants shown at the exhibitions in the gardens of the Horticultural Society, and the Royal Botanic, Regent's Park, and of the mode of treatment pursued in the culture of this most deservedly admired flower, I most cheerfully forward for insertion the following

brief detail of my practice, which has been every year so pre-eminently successful.

My usual mode of culture is to put off the cuttings in June, and as soon as they have struck root to pot them singly, each into a sixty-sized pot. Having done this, I have them put in a shady situation, where they remain for three weeks, at which time I stop them and have them removed to a warmer and full exposed situation, as by that time they will bear it without injury, and it conduces to a better and quicker re-establishment.

In September I repot them into forty-eight-sized pots, and in March into twenty-fours or sixteens, according to the size of the plants. In these pots I let them remain for blooming. The plants have usually done blooming by August; I then cut them down, and repot as described in the previous routine of treatment.

Where a superabundance of lateral shoots are produced, they are thinned, so as to leave only a requisite proportion.

CULTIVATION OF THE CALLA ÆTHIOPICA.

BY AN OLD GARDENER.

PERHAPS the following hints on the culture of the *Calla* may be interesting and useful to the admirers of that much-admired but, I am sorry to say, neglected flower.

It is generally known that the *Calla* (*Richardi*) *Æthiopica* thrives best when treated as an aquatic, and that, when planted on the margins of ponds or other ornamental pieces of water, it is hardy enough to endure the severity of our winters. Though it will not bloom so finely or flourish with the luxuriance, when treated in this manner, as with the ordinary culture, however, the noble appearance of the plant, mingled with the *Nymphaea*, *Nuphar*, etc., is peculiarly striking and beautiful.

But as every flower garden has not the appendage of a piece of water, persons are induced to cultivate this beautiful flower in pans, troughs, etc., with the plants growing in pots plunged or placed in water. This mode of treatment shows too much art, and often has a very slovenly appearance. To obviate this, I adopt the following plan:—Having a large stock of fine plants, I removed the earth from a large oval-formed clump, to the depth of eighteen inches below the surface. I then had a water-tight vessel made of the same size and depth as the bed. I gave this vessel a good coat of pitch, to prevent its rotting. In the bottom of it I placed about six or eight inches of fine gravel; this is placed principally in the middle, and brought down to nothing at the sides. Its object is to raise the plants high in the centre, should they chance to be of the same height. Having placed the pots (which should be of one size) in a regular manner,

the tallest, of course, in the centre, I fill the vessel with water. Around the edge of the vessel I drive round-headed nails, about three or four inches asunder. From these nails I then stretch some fine pliable wire, lengthways, other pieces are stretched crossways; so that the whole resembles a net. With the plants growing through the meshes, on this wire I place a quantity of clean fresh moss, working it tight into the meshes of the wire, and close to the stems of the plants, keeping it pretty high in the centre, to preserve the convexity of the bed. By this treatment all clumsiness is avoided, and the vessel, water, and pots are totally concealed. The moss, lying so near the water, is, with an occasional sprinkling on the surface, kept always fresh and green; whilst its porosity admitting air and heat, the temperature of the water is considerably heightened. Nothing more noble than a mass of plants thus treated can be well imagined; the vivid green of the broad, ample, leathery-looking leaves, contrasted with the large, showy, white flowers, forms at once an object both beautiful, imposing, and magnificent.

To prevent the unseemly appearance of the pit, after the plants are taken to their winter quarters, I place a quantity of evergreen flowering shrubs, in tubs or large pots, in their place for the winter, filling the interstices with moss, in a neat manner.

SUCCESSFUL TREATMENT OF THE HEARTSEASE.

BY PENSEE.

NOT having seen any article on the treatment of these universally admired flowers in the *Cabinet*, since I became a subscriber to it, I beg to forward the following remarks for an early insertion therein.

Preparation of the Soil for Planting.—In the properties of the Heartsease a most extraordinary improvement has been effected during the last few years, and is still proceeding with such rapidity that vast numbers are annually discarded, and their places supplied with new and improved varieties; indeed, there is scarcely a show-flower now cultivated in first-rate collections which has not been produced from seed during the last three years. In connection, however, with these facts is another, with which every cultivator of the Heartsease should be acquainted; viz., that in proportion to the rapidity with which the improvement has been effected, is the tendency to degenerate. This fact has so frequently presented itself to my observation, that I cannot doubt its correctness, and, for the purpose of rendering it evident to all concerned in the matter, I shall say a very few words on what are termed “florists’ flowers” in general, dividing them into two classes; placing in the first class those flowers which have been brought to their present state of perfection rapidly, and in the second class, those which have been improved slowly, and by almost imperceptible degrees. In the first class, then, we shall find the Dahlia and the Heartsease, both of which, it is well known, exhibit

considerable tendency to degenerate. In the second class we find the Pink, Carnation, Tulip, Rose, etc., which show no such tendency, or, if at all, in a very trifling degree. Without, therefore, extending these observations further, we may fairly consider the above fact as established. But it may be asked, what is this to do with the subject of this article, viz., "the preparation of the soil for planting?" It has much to do with it; for it must be observed that, of all the above-named flowers, the Heartsease, which has been improved the most rapidly, flourishes the least, or shows the greatest tendency to degenerate when planted in the common unprepared soil of the general flower-border. It is therefore evident that, as a stimulating system of cultivation has produced the present splendid varieties of the Heartsease, and as, without that stimulation, they evince a considerable disposition to go back, the natural inference is, that it is only by continually enriching the soil that they can be produced in the desired state of perfection. This is indeed the "secret," and in this consists the "art and mystery" of Pansy culture. Having therefore considered these points, we shall be enabled to judge, "with understanding," on the immediate subject of this paper, and on which the following remarks, founded on experience, are offered.

Having fixed upon a suitable situation (which, if possible, should be open to the sun until the middle of the day only), mark out a bed three or four feet wide, allowing one foot to each row of plants. Throw out the soil to the depth of eight inches; and, after having well loosened the bottom, put in a layer, at least two inches thick of fresh,* strong, stable manure, as free from straw as possible; and, before replacing the soil taken out, mix with it a portion of horn-dust and shavings (one-half of each), in the proportion of at least a quarter of a peck to every moderate-sized barrowful of mould, which, if very adhesive, should be lightened by the addition of a little white river or sharp pit sand—red sand generally contains oxide of iron, which is injurious to vegetation. Having well pulverized the soil thus prepared, fill up the bed to the height of six inches above the manure, slightly covering the whole with fine rich mould, taking care that the bed so filled up shall be at least three inches above the paths. Rake the surface smooth and even, and prepare for planting. Where a choice of plants can be had, preference should be given to well-rooted cuttings, choosing those with thin, smooth, solid, green or light-coloured stems, as those with thick, yellow, ribbed stems are much less likely to endure through the winter, or to grow freely in the spring. If the bed is three feet wide, plant one row down the

* By *fresh* manure is meant such as has not lain sufficiently long together to have undergone fermentation, by which process a considerable quantity of carbonic acid gas (which enters largely into the composition of plants) is disengaged and driven off, and the quality of the manure thereby deteriorated. The application of horn-dust to the soil is beneficial, not only on account of its strong stimulating qualities, but also from its particles undergoing considerable expansion during decomposition, by which the soil is kept light and airy, forming a kind of drainage during the wet season, and facilitating the extension of the young roots.

centre, ten inches apart, and another row on each side, six inches from the edge. The roots should not be more than three inches deep in the ground ; if the plants are too long to admit of this, place them aslant, so that the roots may be at the required depth.

If the bed be much exposed to the north or north-east, I would advise that a moderate-sized garden-pot be turned over each plant during severe weather, frequently uncovering them during the day. I have found this plan of essential service, especially when the cold easterly winds prevail in the early part of the spring, or during the heavy rains which frequently fall towards the end of February. The pots should never be removed, after a frosty night, while the sun shines. Many thousands of valuable Heartsease, which stood uninjured through the winter, were lost in March last, in consequence of the frosty nights being succeeded by hot sunny days. If the plants had been shaded from the sun, they would have been saved.

Cuttings of choice kinds may yet be taken, and planted an inch and a half apart, in pots or boxes filled with equal parts of light garden mould and sharp sand, and placed in a cold frame ; the plants will be ready for succession-beds next spring.

THE EFFECTS OF SITUATION AND EXPOSURE ON DIFFERENT KINDS OF PLANTS, DURING SEVERE WINTERS.

BY A COUNTRY CLERGYMAN.

As by far the greater number of plants cultivated in this country are exotics, we find they are variously affected by the changeable weather of our climate, as well as by the attending circumstances of the situation they are destined to occupy. Our knowledge, acquired by experience, of the constitution of foreign plants has supplied us with rules for our guidance in the distribution of them. If we happen to be acquainted with the native habitat of a plant, we can judge pretty accurately what place it is most likely to thrive in with us. Tropical plants, for instance, we place in the stove or conservatory ; Australian, South African, Chinese, and South European, in the greenhouse ; and those from the northern parts of Asia, Europe, and America, anywhere in the open air where we may have occasion for them, or which we may think best adapted for them. This is a very natural way of proceeding, but we are not always right in its application. Some tropical plants are killed by placing and keeping them in the stove ; because it is not so much the latitude whence they have been brought, as it is the elevation of their habitat above the level of the sea which determines their hardiness. Many plants are debilitated by confinement in the greenhouse, and very many extra-tropical plants

are lost from being placed in what is considered the warmest or most sheltered situation.

These errors are occasioned either by a want of experience respecting the constitution of the plant, or from inattention to the extreme change of temperature to which it is exposed in its new place, or from ignorance that situation and exposure change the constitution of plants to such a degree that, while one is perfectly hardy if nursed on a northern aspect, another of the same kind shall be so tender and vulnerable on a southern exposure, that it dies, or is cut down to the ground, under the slightest frost.

Want of experience concerning the constitution of a newly imported plant may be said to be an excusable want of judgment; because we have no means of knowing without experience, there being no general rule to guide. If, indeed, we are told that it is an annual from a warm country, we may safely conclude that it will succeed in this climate during summer, as many tropical annuals do. Or, if it be a perennial herb from the same country, we may find it answer with us if it be only protected from frost. But if tropical shrubs or trees are brought to us, we cannot, from any external mark, judge whether they are liable to be killed by frost or not. If they shed their leaves in winter, it is only a sign that they are winter-resting plants, not that they are hardy; because there are several tropical plants which are deciduous, as, for instance, the silk cotton tree (*Bombax ceiba*); and many evergreens are as hardy as those that shed their leaves.

We often fail in preserving tender plants, from inattention to local circumstances. We are liable to mistake shelter for warmth. Frost and the north and east winds are most dreaded in this country. A southern exposure, whether for the abode of animals, or a station for vegetables, is always considered the most eligible, merely perhaps because it is the most agreeable to our own perceptions. But in respect of vegetables we often err in this matter, both in choosing sheltered situations and southern exposures.

Cold (or rather cold air) is always most intense in humid situations, because there is the most copious evaporation. Such situations, in this country, are either on the tops of clayey hills, or in the lowest valleys, where there is either a lake, river, or brook. These low grounds are nearer the main springs, and often abound with them, whence exhalations are ever rising, though imperceptible; of course, such a valley must always be more chilly, and more subject to keen frost than any drier or more elevated situations. Such glens, provided they are open to the south, are chosen as the most suitable for tender exotics, merely because they are more sheltered from the northern blast. In the summer indeed, such a locality is most favourable to the quick and strong growth of every plant. The air, being generally calm and moist, conduces to vigorous expansion; and the very coolness of a summer's day or night, as felt in such places, is most propitious to luxuriant vegetation.

These circumstances, however, instead of being beneficial to tender exotics, have a directly contrary effect; the summer excitement only renders them less able to bear the frosts, which fall upon them with redoubled intensity in winter. And instead of the slow and sturdy growth which would have happened to a plant on a dry and breezy hill, or on a northern aspect, we have an enfeebled nursling, unfit to bear the rigours of our climate, from sheer mismanagement.

Many proofs of the truth of these statements may be adduced, but we presume they are unnecessary, as the facts must have been repeatedly observed by our readers in general. The fact, however, is most important, not altogether for the sake of naturalizing exotic plants, but for fixing the sites for gardens and orchards, which, if misplaced at first, give cause ever after for regret.

Not only do the exhalations from a moist valley generate cold, but the cold air which descends upon the hills after sunset is said to "slide down" and settle in the lowest place. So firmly is this believed, and acted on by a well-known horticultural philosopher, John Williams, Esq., of Pitmaston, near Worcester, that in all cases where a garden is made on ground sloping to the south, that gentleman invariably advises the lowest boundary to be a hedge; or if a wall, it be raised on grated arches high enough to allow the escape of the cold fleece of air accumulated within the garden. On the same principle, whatever may be the aspect, the upper boundary wall should be high and close, to intercept the descending current and divert it round the ends.

From these circumstances, then, it is fair to conclude that low situations should never be chosen for garden sites, or as the best places for tender exotics.

There is another circumstance, not yet adverted to, which operates injuriously on tender plants in sunny and sheltered valleys. There, they are sooner affected by the returning warmth and solar beams of spring, and hurried into a premature growth long before frosts are over, or the summer temperature confirmed. They are awake and putting forth their tender leaves and shoots before the exposed residents of the hill are in the least acted on. The first have their sap liquefied and in motion; that of the second is clammy and at rest; the first suffer, because they have to sustain four degrees of frost perhaps, when least prepared for it, while the second have only to bear two degrees, and are otherwise fortified against it.

The native plants of the frosty regions of Siberia suffer greatly from late frosts when introduced into British gardens, not from the severity of our seasons compared with that of their own, but entirely from the changeableness of the former. In Siberia the winter sets in at once, and the surface of the ground is soon covered with snow; every vegetable becomes instantly torpid, and in this state remains in perfect safety till the return of spring, or

rather summer, as there is scarcely any spring season in that northern clime,—no intermission of mildness to excite, and frosts to destroy the tender plants, as is so often experienced in this country.

The changeableness of our spring weather is, in fact, the greatest bar to our possessing very many plants, which, to have at all, must be guarded in some kind of building erected for the purpose. Our want of success in attempting to naturalize some exotic shrubs and trees, however, may have happened not so much from the constitutional delicacy of the plants themselves, as to the injudicious manner perhaps in which the trial has been made. Exposed situations on the north side of a hill, and on poor and dry, rather than on rich and moist soil, is certainly the most eligible station for making a trial of the constitution of a foreign plant. Here it would not be excited into too early growth by the early sun of the day or of the season, nor would the aspect induce precocious growth. Its growth would be slower, but its shoots would be firmer in texture, and consequently better able to resist the destructive effects of frozen sap.

I cannot conclude these observations without first alluding to the ideas entertained about the acclimatation of exotic plants. The notion is founded on the supposition that, as animals have a tendency to accommodate themselves to foreign climates, or to the changes of temperature of their own native place, so plants may in like manner be susceptible of physical changes which would enable them to bear great diversity of climatal temperature; but from all experience on this point it appears, from many tropical annuals long cultivated in Britain, that they have not perceptibly advanced in hardihood since the first day of their introduction. Such are the runner kidney-bean (which, by-the-bye, is a perennial); the potato and cucumber among culinary vegetables; the China aster and balsam among flowers, and the melon among fruits. All these have been perpetuated by seeds that have been produced, ever since their first introduction into this country, but without gaining any additional protective habit against frost. We may therefore conclude that plants generally have been formed for the climates to which they are indigenous, and have not that mutability of structure or of sap which would render them invulnerable to frost in a colder country, or to the incessant excitement of a warmer one without deterioration.

That many plants are now seen in the open air which were formerly in the greenhouse, or even in the stove, is well known; but this has not happened in consequence of any change in the constitution of those plants, but merely from being misplaced on their first introduction, for want of experience:—*Aucuba japonica*, one of our hardiest shrubs, was once under my care in the warmest end of a conservatory!

The effect of frost on tender vegetable bodies is mitigated by thawing it off with water before the sun shines upon them. This

seems to contradict what has been before stated, as to dryness being a safeguard to plants. But the cases are different; perfect dryness is a security against frost, but when plants are loaded with frozen dew, and this allowed to be dissolved by the sun, a much more intense degree of cold is generated during the solution of the icy particles by the sun, than if they were suddenly dissolved by water. It is this increased degree of cold which ruptures the delicate vessels of the plants, and of course destroys them.

Sometimes we see the stem of a tender shrub, as a Heath, for instance, rent into many pieces, whilst the younger shoots remain unhurt. This is owing to the rigidity of the first, and the elastic texture of the second; the latter yields to the distending effects of the concealed sap, and afterwards returns to a healthy state, but the unyielding character of the old wood only renders it more destructible. The foliage of the grasses indigenous to cold countries is only withered by frost, but seldom destroyed, owing to the tenacity and elasticity of its structure.

REVIEW.

Rustic Adornments for Homes of Taste, and Recreations for Town Folk in the Study and Imitation of Nature. By SHIRLEY HIBBERD.

A CHARMING book, elegantly bound and illustrated. The subjects which it embraces are treated upon with much ability, not only are they written in a pleasing and entertaining style, but are of an excellent practical character—in fact “*it is a perfect gem*,” which we specially recommend to our readers. The contents comprise—The Aquarium. The Fresh-water Aquarium. The Garden Aquarium. The Wardian Case. Miscellaneous Ornaments for the Dwelling-room. The Aviary, or Bird-house. The Apiary, or Bee-house. The Rockery. The Fernery. Garden Scenery and Ornaments. The particulars in each department are fully and clearly described. The following on the *Fernery* is a fair specimen of this pretty and useful book:—

“THE FERNERY.”

“To-morrow, ere fresh morning streak the east
With first approach of light, we must be risen,
And at our pleasant labour to re-form
Yon flowery arbours, yonder alleys green,
Our walk at noon, with branches overgrown,
That mock our scant manuring.”—MILTON.

Our first parents, if we credit Milton (as we must), were not wholly indebted to the spontaneous growths of their happy garden for their green bowers and mossy seats, but with delicate fingers wove the pliant branches into arches of umbrage, and set alleys of sweet-scented herbs before their favourite retreats. Who knows but

what a Fernery was one of their choice delights. Few rustic adornments would better have become their sylvan home, where shade and coolness, fragrance and verdure, softened the song of love and the hymn of praise.

The Fernery belongs to the truly rustic rather than the rural department of gardening. Though Ferns are beautiful anywhere, and may suitably adorn the trim border, and mingle with the ornaments of formal design, they are more at home, more befitting among tree-stumps, and in boldly designed *rockwork* or water scenery, where they appear in their proper character of wildness and simplicity.

In forming rockwork expressly for Ferns, it is best to construct a square hillock of bricks and stones, the south border of which may be bounded by a high wall, to ensure the necessary shade. One side, at least, should never see the sun, one should have it winter and summer, while the other two should only occasionally bask in its beams. The requisites of an open-air Fernery are ample space, variety of sunshine and shadow, plenty of moisture, an atmosphere comparatively pure, alternations of slopes, hollows, and acclivities of surface, and good shelter from winds and frost.

In town localities, it is difficult to establish Ferns in the open air, owing to their delicacy of constitution, and impatience of a dry or smoky air; but in the suburbs of London, any of the Ferns that are ordinarily grown in the open air will succeed, as we know by experience, and would name some very flourishing *Fern Gardens* at distances varying from two and a half to six miles from St. Paul's.

(*To be continued.*)

NOTES ON NEW AND SELECT PLANTS.

78. *CATTELEYA BICOLOR*. Nat. Ord. *Orchideæ*.—A native of Brazil, introduced into England by Messrs. Loddiges. The plant is of medium growth, and each blossom about four inches across. Petals and sepals broad, leathery, spreading, of a coppery brown colour slightly tinged with green, and the *labellum* long, narrow, of a rich rosy purple, paler towards the end, and there having a delicate yellowish white fringe. (*Fig. in Bot. Mag.*, 4909.)

79. *CYMBIDIUM CHLORANTHUM*. Nat. Ord. *Orchideæ*.—A native of Nepal, from whence it was obtained by Messrs. Loddiges. The leaves are eighteen inches long, and one and a half broad. The flowers are produced *numerously* in a long raceme, and each blossom is an inch and a half across; petals and sepals narrow, of a yellow-green colour, spotted with blood-red at the base. *Lip* broader than the petals, of a yellowish white, spotted with blood colour at the base. The *column* is *yellow*, sprinkled with numerous blood-coloured dots. A very interesting species. (*Fig. in Bot. Mag.*, 4907.)

80. *CORREA CARDINALIS* (*Scarlet flowered*). Nat. Ord. *Diosmeæ*.—It is a native of South Australia, from whence Messrs. Veitch

obtained it. It there forms a handsome bush of about a yard high, and blooms in profusion. Each leaf is about an inch long and a quarter of an inch broad. The flowers are *drooping*, tube shaped, each being an inch and a quarter long, of a rich scarlet colour, with a yellow tipped end. It is a charming species, begins to bloom in the greenhouse in March, and continues long to be highly ornamental. (*Fig. in Bot. Mag.*, 4912.)

81. *PENTAPTERYGIIUM FLAVUM*. Nat. Ord. *Vacciniaceæ*. Syn. *Thibaudia flava*.—It is a native of the Duphla Hills, in north-eastern India, where it was discovered growing upon trees (similarly to many of the drooping orchids), along with *Rhododendron Nuttallii*. Seeds being obtained by Mr. Nuttall, and plants raised, they have bloomed at Nutgrove, Rainhill. It is a *shrubby* plant, having stout *woody* branches; the leaves are much like those of a vigorous rough-leaved *Siphocampylus*. Each blossom is tube shaped, an inch long; they are produced numerously, in rather short racemes, near to the end of each shoot. By proper attention it will, flourish grown *erect*, but in its native character it grows as an *epiphyte on trees*, in shady forests. It flourishes in a temperate climate, as the greenhouse, etc. (*Fig. in Bot. Mag.*, 4910.)

82. *ABRONIA UMBELLATA*.—This pretty neat-flowering plant was introduced a few years back, and was then generally considered a very delicate-growing plant. We have seen it flourish most admirably, and bloom very freely, trained against a brick wall having a south-west aspect. The plants were raised in-doors, and turned out into the open air border of rather strong loam, in front of the wall. Its numerous heads (Verbena-like) of rosy lilac-coloured flowers are interesting and pretty. (*Fig. in M. Van Houtte's Flor. des Serres*, 1095.)

83. *SPIREA REEVESIANA*. Var. *flore plena*.—This very pretty variety was originally discovered in China, by Mr. Fortune, who introduced it into England. It forms a neat shrub, each leaf nearly two inches long, broadish lance shaped. The flowers are produced in handsome corymbose heads, each having about thirty pure white *double blossoms*, which are interesting, pretty, and ornamental. Each blossom is nearly half an inch across. The shrub is quite hardy, grows freely, blooms profusely, and merits a place in every shrub border. Plants may be procured at the principal nurseries, at a cheap rate. (*Fig. in M. Van Houtte's Flor. des Serres*, 1097.)

84. *NYMPHÆA BLANDA*. Syn. *N. Amazonum*.—Seeds of this very pretty flowering plant were received by Mr. Moore, Curator of the Glasnevin Botanic Garden, Dublin, from Jamaica, sent by Mr. W. T. March. It is an exotic species, of medium stature. The flowers are of a pretty yellow colour, each blossom being about five inches across, semi-double, and have a fragrance much like the *Magnolia fuscata*. It merits a place in every aquarium for exotics. (*Fig. in M. Van Houtte's Flor. des Serres*, 1086.)

85. *IRIS SUSIANA*.—The flowers of this very singular species are larger than those of any other Iris, each blossom being eight inches across lengthways, and six inches broad. The ground is

white, streaked, spotted, and shaded with a dark *chocolate colour*. It is a highly interesting flower. The main stem rises to about two feet high. It merits a place in every collection of bulbous plants. (*Fig. in Flor. des Serres*, 1038.)

86. CLINTONIA PULCHELLA (*varieties*). Nat. Ord. *Lobeliaceæ*.—Many of our readers know and have admired the beautiful low-growing, annual plant *Clintonia pulchella*. In M. Van Houtte's *Flor. des Serres* there are figured three pretty *varieties*; they are of similar growth, size, and habit as the above-named species, the difference is in the flowers. Var. *a*: the flowers are *blue*, with a large *white* centre, tinged with *yellow* at the eye. Var. *b*: the flowers are *white*, tinged at the eye with *yellow*. Var. *c*: the flowers are of a violet colour, with a large white centre, tinged at the eye with *yellow*. They are very distinct varieties, neat and pretty. The *Clintonia pulchella* differs from the *C. elegans* principally by the *upper lobes* of the blossom, which are divergent, and not contiguous.

87. MEYENIA ERECTA. Nat. Ord. *Thunbergiaceæ*.—In our last year's volume we noticed this fine flowering plant. It is a *shrubby*, bushy plant, having a tendency to climb. The leaves are oval, notched, about an inch long. The flowers are in form between those of a *Thunbergia* and the larger-flowered *Achimenes*. The tube portion is nearly three inches long, and half an inch in diameter, white, tinged inside with *yellow*. The front of the flower (limb) is five divided lobes, and about two inches across, of a rich violet-purple. It is a stove plant of much beauty, blooming profusely. It may be had of the principal nurserymen, at about half a guinea each. (*Fig. in Flor. des Serres*, 1093.)

88. CANARINA CAMPANULA. Nat. Ord. *Campanulaceæ*.—An old plant, long been an inhabitant of our greenhouses, and known by some persons under the name of *Campanula canariensis*. It is a soft-wooded, tall-growing plant, whose branches die down every winter. It blooms freely. The flowers are bell shaped, each being about an inch and a half long, and as much across the six-parted mouth. The blossoms are drooping, and of a rich orange-flame colour, beautifully striped and veined with purple-crimson; it blooms freely from the beginning of October to Christmas, or even later in winter. It may be had cheap at the principal nurseries. (*Fig. in Flor. des Serres*, 1094.)

89. ARDISIA SIEBOLDII.—This very handsome species was introduced from China by Dr. Siebold. It is a *graceful* shrubby plant; the leaves are about five inches long, notched, of a *shining* green. It blooms in profusion, and produces a proportionate mass of *brilliant scarlet berries*; even small plants, not more than a foot high are almost covered with these splendid ornaments, and which continue in perfection during the entire winter and spring. It is one of the most valuable plants for decoration of the stove, conservatory, etc., we possess. Plants may be had at 21s. each.

90. BEGONIA ZANTHINA ARGENTEA.—A beautiful addition to the

ornamental foliaged plants. The leaves are of handsome form, the upper surface is profusely dotted with silvery white blotches. The flowers are rosy pink, striped with crimson. The plant grows freely, and is of easy cultivation. It merits a place in every collection. Plants may be had at 10s. 6d. each.

91. *BEGONIA PICTA*.—This beautiful new species has been introduced into England by Messrs. Low and Co., of Clapton Nursery. The foliage is exceedingly ornamental, and the plant forms a neat dwarfish bush, having large leaves. The leaf-stalks and under part of the young foliage are thickly clothed with short *bright red hairs*. The upper side of the leaves are a velvety green, with a *frosted white* zone in the centre; sometimes the frosted white extends so near the edge as only to leave a narrow margin of green; the under side of the leaves is of a purple-red colour, extending from the stalk half-way through, the remainder of the leaf being green, margined with red.

92. *BEGONIA CINNABARINA HYBRIDA*. The *B. cinnabarina* has a *bulbous root*, and the stems annually die down; but the present variety possesses a *shrubby habit*, having large leaves, and the flowers are produced in large trusses. Each blossom is similar in size to those of *B. cinnabarina*, of a vivid orange-scarlet colour. It blooms properly through winter. The above new Begonias can be had at the London nurseries, at 15s. to 21s. each.

93. *DIANTHUS ALBO-NIGRICANS*.—This singularly beautiful plant is a *hardy* variety, raised in Belgium. The flowers are large, of a rich black-maroon, edged with pure white, and finely fringed. It can be had of Messrs. Henderson and Son, at 5s. each.

94. *CAMELLIA JENNY LIND*.—Messrs. Henderson and Son gave £200 to Mr. Makenzie, of Philadelphia, in America, for the stock of this variety. The form of the flower is *most exquisite*; the arrangement of the petals to the very centre is *perfection itself*, forming a true half-globe; white, streaked with rosy pink. The present price is from 21s. to 63s. per plant.

95. *POTENTILLA GRANDIFLORA MACULATA*.—The flowers are large, semi-double, of a rich yellow, with crimson blotches.

96. *POTENTILLA COCCINEA FLORE-PLENA*.—The flowers are large, *double*, of a rich dark scarlet colour.

97. *POTENTILLA LUTEA FLORE-PLENA*.—The flowers are of a bright golden yellow, *double*, and very showy. These *Potentillas* may be had at 7s. 6d. each.

QUESTIONS, ANSWERS, AND REMARKS.

DRYING SPECIMENS OF FLOWERS.—A Young Florist is desirous of commencing with the season drying floral specimens for an herbarium, and will be glad of a hint how to succeed in the process.—*Leeds*, 1856. [In drying the specimens, care must be taken not to press them so much as to crush them; succulents, and kinds that drop their leaves, such as *Heaths*, should be dipped in hot water before they are pressed.

Each specimen should be placed between a sheet of brown or blotting paper, and between each filled sheet several empty ones should be placed; for the first day or two the pressure should be only just sufficient to prevent the leaves and flowers from shrivelling. When the papers are damp, the plants should be placed in dry ones, increasing the pressure after every shift till the specimens are perfectly dry.—*Editor.*]

ON HARDY FERNS.—A subscriber to the *Floricultural Cabinet* requests to know where the best collection of hardy Ferns can be procured. An early answer will oblige.—*Amelia.*

A LIST OF PLANTS FOR A ROOM, ETC.—I shall feel particularly obliged if you or some correspondent will furnish me immediately with a select list of plants that will succeed best in a room, and whether such should be propagated afterwards by seeds or cuttings.—*A Subscriber.*

A LIST OF GREENHOUSE CREEPERS, ETC.—A Subscriber will be much obliged to the Editor of the *Cabinet*, or other reader hereof, to have the kindness to give her a list of the names of the best kinds of Creepers for a greenhouse, where no vines are kept, and what kinds will do in pots, and what soil is suitable for each. Whether Camellias do well at the back of a greenhouse, the best way to plant them, and what kind of soil to plant them in? An answer in next month's number will oblige.—*A Subscriber.*

ON SOIL SUITABLE FOR PETUNIAS.—You would confer a great favour if you would inform me, through the medium of your valuable *Cabinet*, what is the most suitable soil for Petunias. I have a large number of seedlings, from first-rate varieties, consequently I am looking forward with anxiety to their blooming; but they do not grow so luxuriantly as I could wish, for want of, as I imagine, proper soil.—*C. W. F.* [In a light loam, well enriched with rotten dung, they grow vigorously with us, having an inch deep of broken pots for drainage, or planted in the open bed.—*Editor.*]

ON WATER PLANTS.—I should feel greatly obliged to you or to some of your correspondents, to inform me, in the May or June number of the *Floricultural Cabinet*, what Lilies, or other water-plants (to the number of about half a dozen), are the most suitable for a small pond of eighteen or twenty feet in diameter; also whether the circumstance of ducks being allowed to use the pond would be likely to prevent their flourishing properly. May I further trouble you to tell me whether plants of the American Cranberry can be purchased of any of the English nurserymen, or whether they or the Scotch Cranberry (which I think I have understood only succeeds by running water) would make a suitable as well as useful plant for the margin of a stagnant pond? Directions as to the planting or after-treatment of the Cranberries and Lilies would confer an additional favour upon an—*Old Subscriber.*

ON THE IMPREGNATION OF FLOWERS.—A correspondent wishes to obtain information relative to the impregnation of Geraniums, in order to produce various crosses by that method. Answers to the following questions will be thankfully received. How are the male and female blossoms to be distinguished? In what state of the blossom's expansion ought the prolific powder to be applied—likewise the manner of doing it? And last, but not least, how are the plants to be managed after impregnation has been effected, so that the blossoms thus acted on shall produce prolific seed? Do give a reply in the May Magazine, and oblige—*Monus Filius.* [Pelargoniums, commonly called Geraniums, are of the kind termed bisexual, containing within a single flower both sexes, male and female. The stamens (male) are composed of two parts: one usually long and slender, by which they are fastened to the bottom of the corolla—this is called the filament; the other, placed at the top of the filament, called the anther. Each anther is a kind of cell or box, which opens when it is ripe, and throws out a dust, usually of a white or yellow colour; this is termed pollen, or farina. The pistil or pointal, placed in the centre, is composed of three parts—the germen, the style, and the stigma. The germen is always placed below the style; its office is to contain the embryo seeds. The style is placed on the germen; and the stigma is the curved portions crowning the style. When the anthers burst open and the dust appears, then it is in its perfect state. It is usual at that time the stigma is so too. When it is desired to hybridize, clip away the stamens, leaving only the pistil in such single blossom; then bring, from another kind of Geranium, a flower which has pollen (the dust) in a perfect state, and dust it upon the stigma. Care must be taken, for a day or two, that the part thus operated upon is

not watered over, or allowed to be blown by a strong current of wind. This being performed vivifies the seed. Care should be taken to protect the impregnated blossoms from bees, etc., which, hovering over and alighting upon the flowers, convey pollen, and effect the process of impregnation, and by taking it from ill-formed flowers, etc., the design is defeated. To have superb new sorts, both kinds (the one impregnated, and the other from which the dust is taken) should be of first-rate form, the flower to be nearly a circle, each petal proportionate to the others in size; petals thick, edges smooth and even, and the bloom expanded well to view. Having such kinds, it is best to keep them remote from any others; and by a judicious admixture of colours, spots, etc., a beautiful progeny will be obtained. When the plant has been impregnated, as at all other times, it ought not to lack water. When the seed is ripe it must be carefully watched, as it occasionally starts off from the style and germen rapidly. When ripe seed can be obtained by July or early in August, it should be immediately sown, about an eighth of an inch, covered with fine soil, placed in a hotbed, and kept moist (not wet), and the plants soon appear. When strong enough (and that is early), they must be carefully taken up, potted in sixty-sized pots in rich loam, placed in a hotbed frame, and repotted when required. By October the plants will be strong, and may gradually be hardened. Care must be taken they are not damped off in winter; must be kept rather dry, in an airy place, near to light. When seed is gathered late in summer, it is best to save it (not where it can be dried excessively) till spring, and sow it then. When a seedling has got a foot or half a yard high, the lead should be stopped to induce the production of laterals, which often bloom much sooner than if the lead was retained. —*Editor.*]

SEEDLING CALCEOLARIAS.—A correspondent recently writes—"When is the best time, and how may I best succeed in raising Calceolarias from seed?"—*Harriet*. [I am an extensive grower for Covent Garden, and in reply beg to inform her—Sow it as soon as ripe (say August) in a pot, using a very fine surface-soil of sandy peat and loam, equal parts—as the seed is very small, it is best, in order to distribute it equally, to mix it with a little sand; after sowing it just cover it with soil, gently press the surface, and place the pot in a cucumber-frame, where it must be kept shaded. When the plants appear to justify a removal without risk of losing them, remove the pot to a cooler place, as a *cool frame* near the glass, or the shelf of a greenhouse near the glass. Transplant as soon as the plants are strong enough. Before the plants are up, or during their early infant state, if watering be required, let it be applied by means of a very fine syringe. Plants thus raised must be potted into forty-eights in February, be kept robust by air, and in May will begin to bloom, and by due treatment a succession may be had in bloom till October.—*Solomon.*]

MANAGEMENT OF YUCCAS.—Pomona, a subscriber to the *Floricultural Cabinet*, will feel obliged to the Editor or some other reader hereof, if they will furnish her with the particulars of the management of the *Yucca gloriosa*, *Y. Draconis*, and *Y. filamentosa*, with the difference of the plants, the season for planting, and their age for blooming; and also if the Moutan Pæonies from China, mentioned in the February number for 1855, of the *Cabinet*, will thrive in the open air, and if they are quite hardy for the climate of Scotland, and what is the price of the plants. [*Yucca gloriosa* (Common Adam's Needle). Rises, with an upright, ligneous, thick stem, two or three feet high, having very long, narrow, stiff, entire leaves, ending in a long, sharp, black spine, garnishing the stem almost to the bottom, and in a large tuft at top; and from the centre of the top leaves rise a long branching peduncle, sustaining a panicle of bell-shaped white and purple flowers. *Yucca filamentosa* (the filamentose, or thready Virginian Yucca). Rises, with an upright, thick, ligneous (woody) stem, two to three feet high, adorned at top with a tuft of *very long* spear-shaped, stiff, blunt-pointed, sawed, *filamentose* (thready) leaves, emitting long threads from the sides, hanging downward; and from the top of the stem amidst the leaves an erect peduncle or flower-stalk, several feet high, garnished with many large white and purple striped leaves. The above species are natives of North America: the former of Canada, and the latter of Virginia. If *young* plants are put into the open ground, they (in the *cold* parts of Great Britain) require a little occasional shelter whilst young, for two or three winters. They require a *sheltered situation*, or both foliage and flowers will be damaged by the wind. *Yucca Draconis* (Dragon-tree-leaved Yucca). Rises, with an upright, thick, *brown* stem, three feet high,

crowned with long, narrow, *serrated* leaves, ending in spines, and *nodding downward*; also in the centre of the leaves arise the flower-stalks, very branchy, with all the branches terminating in spikes of flesh-coloured flowers. As all the kinds of Yuccas are of a succulent nature, they should always be planted in a *light, dry* soil; a good portion of rotten leaf-mould mixed with sand, peat, and loam suits the plants best. The price per plant varies, according to size, from 8s. 6d. to 7s. 6d.—*Editor*.]

TREATMENT OF THE HOYA CARNOSA.—Not having observed any reply to your correspondent's question respecting the treatment of the *Hoya carnosa*, I send my gardener's mode of treatment, which always succeeds admirably. He uses a mixture of sand and heath-mould, and during the colder part of the year keeps the pots in the hothouse. Those plants of the *Hoya carnosa* which are propagated by planting the leaf are *long* in producing any stem; and it is better to procure a good *offset*, and lay it spirally in a pot containing the above mixture, when a fine plant is rapidly produced. This *waxen-flowered* plant shows to advantage trained along a rafter or against a trellis, and requires the free access of air and light; no other flower excels it in beauty.—*Lucy*.

RHODANTHE MANGLESII, ETC.—I observe *Inquirer* requests information on the management of the *Rhodanthe* and *Leptosiphon*, I therefore send the following remarks. I beg to state that last year I had a plant of *Rhodanthe Manglesii* in bloom, on which there were upwards of sixty blossoms at one time, and which, in the heat of the day, all expanding at once, and of a beautiful pink colour, were very showy in the front part of a border out-doors. Some time back I grew the *Rhodanthe* and *Leptosiphon densiflorus* in pots for spring ornament, which succeeded admirably; I therefore recommend the plan to *Inquirer*. The method I practise is to sow the seed in autumn, and keep the plants in a dry cool frame or cool greenhouse through winter; and in April, May, June, and July they bloom profusely in the greenhouse, and are highly ornamental. I also turn a number out of pots, into the open bed, about the middle of May, which bloom in vigour and profusion to the end of September or into October. I grow numerous pots of plants, near two feet high, which are quite a mass of bloom. I strongly recommend the culture of the *Rhodanthe* both in pots and open borders, and equally so the *Leptosiphon*, which, when sown in autumn and bloomed in pots in the greenhouse or conservatory, or a room window, is so superior in the size and beauty of its blossoms to what is usual in the open bed, as scarcely to be known to be the same plant.

GAS CONSUMED IN HEATING A GREENHOUSE.—In recent numbers of the *Floricultural Cabinet*, remarks are made as to the cost of gas for the purpose of heating greenhouses. I have a greenhouse twenty-three feet long, by seven feet six inches wide, height in front, six feet six inches, and at the back, eight feet. It is heated by water, the water being heated by gas, which I find answers very well. The greenhouse was fitted up, last autumn, with two three-inch pipes made of very stout zinc, connected with the boiler by brass unions, for convenience of removal, if necessary. The boiler is constructed of copper, and is so arranged that a great amount of heat may be obtained from a small quantity of gas. On the coldest night this winter the thermometer in the greenhouse, at the farthest point from the pipes, did not fall below 38°. The quantity of gas consumed is about one hundred feet in six hours; but I do not usually find it necessary to burn so much, my object being only to keep the frost out, and, occasionally, to dry the house in damp weather. The pipes and boiler, with feed-cistern, contain about eighteen gallons of water. One hundred feet of gas would be sufficient, with the boiler I have in use, to heat a larger pipe than I have attached to it, or a greater length of the same size, which, of course, would raise the temperature of the house somewhat higher. I had the boiler in question made ten years ago, for the purpose of heating a garden frame nine feet by six feet, for which it was larger than was required. I have been informed, that the gas produced by the Cannel coal does not give sufficient heat for use in stoves, and consequently would not do for this purpose. It is quite necessary to have the boiler so arranged that there may be a tube to carry off the smoke and vapour arising from the gas, which, if allowed to escape in the house, would be very injurious to the plants. *Thin iron* would be a bad material for the boiler, as the gas would corrode and eat through it in a very short time. Copper, though more expensive at first, is cheapest in the end. [*Copper* is essential to success in heating.—*Editor*.]



SPİREA REEVESIANA FL PL

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JUNE, 1856.

ILLUSTRATION.

SPIRÆA REEVESIANA. Var. *flore-pleno*.

THE name *Spiræa* signifies a *rope*, derived from *speirao*, to become spiral, in allusion to the stems and branches of *Spiræas* being flexible like ropes, and bearing without injury to be twisted into *garlands* for the head; hence, in former times, the branches of the fragrant, beautiful white-blossomed formed part of the *floral garland* worn by the bride at the marriage festival, and in those countries was called *Bridewort*, which subsequently became its general name.

This elegant and interesting family of plants contains about an equal number of *hardy shrubs* and *hardy herbaceous perennials*. One of the *shrubby*, the *S. hypericifolia*, is very common in Italy, and is called the *Italian May*, and is as general and ornamental there (forming hedges) as in England is the common *Thorn May* of our hedges. The plant is a profuse bloomer, and its snow-white flowers are very ornamental; when grown singly, it forms a bush of six to eight feet high. The *S. chamaedrifolia* (germander-leaved) is a native of Siberia, where it forms beautiful dwarf hedges, bearing a profusion of white flowers. The inhabitants use the leaves as tea, and make tobacco-pipes of the straight shoots. The well-known *S. opulifolia*, or Snowball-tree, is one of the most deservedly admired plants our shrubberies contain, when laden with its accustomed *profusion* of elegant, pendent globes of the purest flowers. There is variety of it (quite a *dwarf shrub*) which blooms equally profuse and beautiful. Both are entitled to a place in every pleasure ground, where they contrast charmingly with the flowers of the Lilacs, Laburnums, etc.

S. callosa.—This neat shrubby species was discovered by Mr. Fortune in the north of China, who sent plants to Messrs. Standish and Noble, of Bagshot Nursery. The flowers are produced in terminal branching cymes, of a *bright rose* colour, and are very pretty.

S. laxiflora.—A dwarf bushy shrub, a native of Nepal, quite hardy. The flowers are produced in terminal spreading panicked heads, white. Its dwarf habit and free-flowering character render it valuable for the *front* of a border of shrubs.

S. salicifolia.—A tall-growing, pyramidal bush, attaining a height of about eight feet. It bears flowers on short, terminal, pyramidal spikes, of a pretty blush colour. Blooms in July and August.

S. salicifolia, var. *paniculata*.—A very bushy shrub, reaching five feet. The branches terminate in large pyramidal-shaped heads of white flowers, with pink anthers; it makes a very pretty appearance on the edge of a lawn, in July, when it comes into profuse flower.

S. grandiflora.—Also a bushy variety, rather tall, reaching from four to six feet. The flowers are pink, borne on terminal shoots and branches, each spike being three or four inches in length.

S. canadensis makes a pretty ornament during July and August. It grows four feet high, and is of a bushy habit. The flowers are white, with blush-coloured filaments or anthers, borne in terminal branching spikes.

S. inflexa.—This bears its flowers on short side branches, about ten to twelve on a stalk, and half an inch in diameter. It attains about four feet.

S. Reevesiana, var. *flore pleno*.—This very handsome shrub, with double flowers, was received from the north of China, having been sent to this country by Mr. Fortune. It forms a very pretty object when its snow-white flowers are fully out, each being very double, and borne in compact heads. It attains about the height of five feet, and should be obtained by every lover of pretty flowering shrubs.

Most of our readers are familiar with several of the *herbaceous perennial* kinds, which grace not only our flower gardens, but adorn

our woods and fields, we refer to the *Spiræa Ulmaria*, Meadow-sweet, or Queen of the Meadow, which abounds in moist meadows and woods, perfuming the air with the *hawthorn-like* fragrance of their pretty white flowers.

“Each dry entangled copse empurpled glows
With *Orcis* blooms; while in the moistened plain
The *Meadow-sweet* its luscious fragrance yields.”

THE WALLFLOWER.

BY MR. PETER MAKENZIE, WEST PLEAN, STIRLING.

“There’s not a heath, however rude,
But hath some little flower
To brighten up its solitude,
And scent the evening hour.

“There’s not a heart, however cast
By grief and sorrow down,
But hath some memory of the past,
To love and call its own.”

I REMEMBER the time when I looked upon Stirling Castle as “the mightiest work of human power;” the foundations of its lofty buildings resting upon gigantic columns of basalt, and the rocky pillars affording a support to the ivy, and a home to the common pellitory of the wall. Bœce, the historian, tells us that the Romans had a station there, and that Agricola raised fortifications on the rock. Many changes have passed over the place since these warriors passed along the Ballengeich Road, to the time when Queen Victoria entered the ancient fortress. I have stood upon the spot where her Majesty stood, when she looked upon one of the finest landscapes in her wide domains, and I picked up one of the plants that grew at her feet—the *Arenaria serpyllifolia*, or Thyme-leaved Sandwort. This plant, which is found on banks and old walls, had made its way to the loftiest battlements of the Castle.

I have gathered flowers from the rocks when the sun was setting behind the highland mountains, in the flowery month of June, and was ready to exclaim—

“What magic hues the sunset pours,
All through a birken glade—
Sooth, you might think that every leaf
Of living gold was made.”

I have been there on a December evening, and seen the winter sun go down beneath the heathy moors, and the blasts from the lofty Ben Lomond came rushing along the upper valley of the Forth. I stood among the rocks, and

“The wind
Came by, and bathed my temples with the breath
Of Freedom’s hardy blossom—the dark heath

Of Scotia's rock-ribb'd mountains. Cradled there,
 Her sons have suckled freedom. From beneath,
 Upborne on azure wings of purest air,
 Came myriad voices, thrilling with soft glee,
 From plain and fountain, rock, and forest tree.
 My heart sprung forth to join
 That stirring concert, that wild jubilee;
 I knew the voice, I knew that it was thine,
 O Liberty divine!
 Therefore my heart did greet it, for I too was free."

In such situations it is pleasant, even in winter, to look upon the plant of the Wallflower, which, in floral language, we are told, stands as the emblem of fidelity in misfortune, because it attaches itself to the desolate, and enlivens the ruins which time and neglect would otherwise have rendered terrible. It hides the savage strokes of feudal time on the castle walls, fills the space of the wanted stone in the mouldering church, and wreathes a garland on the crumbling monument no longer noticed by friendly relations.

Amidst the rocks and ruins where the Wallflower abounds, the mind may receive instruction, find sermons in stone, and think upon the Rock of Ages, and be directed to that friend which sticketh closer than a brother.

The associations of the Wallflower are finely set forth in the following sonnet:—

"Cheerful 'midst desolation's sadness—thou,
 Fair flower, are wont to grace the mouldering pile,
 And brightly bloom o'er ruin, like a smile,
 Reposing calm on Age's favoured brow.
 Sweet monitor! an emblem sure I see
 Of virtue, and of virtue's power, in thee;
 For, though thou cheerest the dull ruin's gloom,
 Still, when thou'rt found upon the gay parterre,
 There thou art sweetest—fairest of the fair;—
 So virtue, while it robs of dread the tomb,
 Shines in the crown that youth and beauty wear,
 Being best of all the gems that glitter there."

There are many varieties of *Cheiranthus cheiri*, or garden wall-flowers, such as the double-flowered, large-flowered, largest, saw-flowered, rusty-flowered various, flavescent, thyrse-flowered, bloody, double bloody, tall double purple, dwarf double purple, double canary-coloured, double chestnut-coloured, double purple striped with brown, etc. Different cultivators have different modes for prolonging the flowering season of the Wallflower in gardens. To have early blooming plants in spring, one will tell us to sow early in August. To bloom from the beginning of July, sow about the middle of September; to bloom in September and to the end of the season, sow in May. Another, from one sowing in summer, will manage to keep up a bloom for a long period of the year. He will take the early and best plants of the seedbed, and transplant them into good soil and a warm situation; they will make strong bushy

plants by the end of autumn. Some of them may be lifted at that season and put into pots, and placed in the greenhouse, and they will bloom early there; others may be potted and placed in a cold pit, and they will succeed those in the greenhouse, or they may be planted out early in spring in the open borders, and keep company with snowdrops and crocuses. Those in the first transplanted bed that remain, if not wanted to flower where they were first put, may be removed to other beds and borders where they may be wanted; the other plants of the seedbed may be put into poorer soil and colder aspects, and they will flower late in the season.

Although the Wallflower has long been placed among our native plants, we are informed that it is a native of the south of Europe, and is found wild in Switzerland, France, and Spain, and it is thought to be one of the earliest flowers which was cultivated in our gardens, from its being so constantly found on the ruins of our oldest buildings. The poet, speaking of the Wallflower, says—

“For this obedient zephyrs bear,
Her light seeds round yon turret’s mould,
And, undispersed by tempest, there
They rise in vegetable gold.”

There are some old ruins, however, where there is some difficulty, and also danger, in getting the Wallflower to grow upon them, and gardeners sometimes run considerable risk of a fall in ascending old ruins and placing small balls of moist earth, mixed with Wallflower-seed, in the wide joints of the decaying buildings.

Many may wonder why the Wallflower plants in their gardens are some seasons so greatly injured by the frost, while those growing a great height on old walls are alive and flower well. A writer tells us that the Wallflowers which grow out of the crevices of old buildings are of a much hardier nature than those of the garden, for, as they can receive but little moisture by the fibres of their roots, their stems become *firm and woody*, and able to bear the frost without injury, whereas those cultivated in the garden become *succulent*, and, consequently, more susceptible of cold.

Of late years *many beautiful varieties* of Wallflower have been imported from Germany, as crimson, with white stripes, etc. These have been originated between the Wallflower and the Stock, and well deserve a place in our gardens.

In the mouldering ruin we may see the end of those that forget God. “He shall lean upon his house, but it shall not stand; he shall hold it fast, but it shall not endure.”

With all our nursing and all our care, our sweetest and fairest flowers die. In their death we may behold the emblem of our state. Man cometh forth as a flower and is cut down; the evanescent pleasures of time continue not, and it shall be for the happiness of all to seek after those perennial delights which God hath promised to give, and at whose right hand are pleasures for evermore.

REMARKS ON LANDSCAPE GARDENING.

BY THOMAS RUTGER, ESQ., DEVONPORT.

As landscape gardening may in some measure be considered as interwoven with that of floricultural gardening, I am glad to see the subject taken up by one of your correspondents for the *Cabinet*. He has entered upon a wide field, which, if he likes to pursue it, may develop many hints serviceable to the admirers of the art, and at the same time be beneficial to many of the readers of the *Cabinet*. Among the many who have written upon the subject, Gilpin's "Practical Hints upon Landscape Gardening" may be useful to such as feel inclined to study the art, at the same time it will be seen that the author is not sparing in his criticisms on those who have gone before him. Much may also be gleaned from Loudon's "Encyclopædia of Gardening," in which descriptions are given of many places of note both in England and abroad, including both ancient and modern gardening. There is a book, entitled "The Practice of Gardening," etc., by Le Sieur Alexandre le Blonde, translated by John James, of Greenwich, second edition, dated 1728. There are many well-engraved plates in it, and much of what I suppose was original matter in its day, but which is very antiquely expressed; it is, nevertheless, well worth an inspection, if it were merely for the plates it contains.

On a visit or two which I paid last autumn to the Crystal Palace, near Sydenham, it struck me, while walking through the grounds, the great advantages the landscape gardener has in having the whole of the site to be laid out at once under his control. In such a case there is room for the study of symmetry in all its bearings, whether in the geometrical or what is called the natural style of gardening—advantages in both of which have been there taken, and, as a whole, presents perhaps one of the most perfect models of landscape gardening in Europe, viz., taking into account the advantages or disadvantages which the ground presented before it was operated upon. If we select a place which has been laid out and added to at different times, we shall find much of deficiency in the symmetry it presents when compared with the gardens at the Crystal Palace, or at other places where the grounds have been laid out at once. Take Kew Gardens, for instance (where I spent several years during my early days). It is generally acknowledged that the gardens at Kew are considered as very fine, and this is verified by their being admired by the number of its visitors during the summer. But where is symmetry to be found there? Little, if any, comparatively. The principal interest excited is to be found in its productions, which, while many of them attract and please the multitude, are most valuable to the scientific admirer of plants, etc. It is true there are several striking things to be seen, in particular the magnificent Palm-house, which is a noble structure, and had it been convenient to have erected it at the end of the broad walk leading to the ornamental basin, it would have added

greatly to its appearance. Were I permitted to criticise, I should rather have had the structure for the *Victoria Regia* somewhere at a distance from the Palm-house. Where it stands it is, of course, too diminutive to detract anything from the Palm-house, but, on the other hand, the Palm-house makes it look almost contemptible where it stands; but it might have had a respectable appearance if placed at a remote distance from it. The Pagoda is now become an object of interest, since the avenue has been opened in that direction. It would have been a more happy circumstance, could it have been approached through the central avenue; as it is, it stands in a diagonal direction. What is wanted now, is some object of a colossal kind at the extremity of the middle avenue, and could that on the right be extended, then something might be erected at its extremity to balance that of the Pagoda, the avenue to which will be grand, when the *Deodoras* are grown up. Had the house which was built near the entrance for the Palms, and which is now occupied by *Bankias*, etc., been erected at the extremity of the straight entrance walk, it would have had a more stately appearance than it has where it now stands, and would have formed a good terminus to that walk, something like the terminus to the straight entrance walk in the Royal Botanic Garden, Regent's Park, where the house called the Winter Garden is erected.

TREATMENT OF HERBACEOUS CALCEOLARIAS.

BY F. A. SMITH.

THE latter part of summer being the best time for increasing this section of *Calceolarias*, I send my mode of treatment, which has been pre-eminently successful, for insertion in an early number of the *Floricultural Cabinet*.

To increase by cuttings, etc., I treat them as follows:—During October and November all those offshoots that are undermost throw out a quantity of small rootlets; the shoots being taken off, and potted immediately, establish themselves. I pot them separately into small pots, in a light sandy loam and vegetable mould, equal parts. Immediately on potting I place them in a close frame for about a month. This closeness very materially contributes to an immediate growth; for, when exposed to a stronger current of air, it has a tendency to dry the foliage and injure the plant. Whilst in the frame I keep the soil moist, but am careful not to wet the foliage, as it would be likely to rot the plants. At the end of November I have the plants placed on a shelf near the glass in a greenhouse, where they remain during the winter. In this situation they grow freely, and if the pots become filled with roots I repot into larger; this encourages the plant to grow in size, without which weak blooming shoots would in all probability push, to the injury of its proper blooming the following season.

At the end of March I replot the whole into twenty-four-sized pots, using a sandy loam enriched with well-rotted cow-dung; the latter is found very beneficial, being of a cooler nature than horse-dung, it is more suited to the *Calceolaria*. At the end of April, or first week in May, I replot into twelve-sized pots, using the same kind of compost. At each potting a free portion of drainage is given, to admit the water to run off easily; this admits a greater proportion of water being applied, and affords a corresponding quantity of nutriment. I use fresh water and liquid manure regularly from the potting into twenty-fours, using the liquid manure every third watering. The plants are kept in the greenhouse during the time from autumn to the close of their blooming, which is usually the end of July. At that time, the stems being withered, I replot those I wish for extra-sized plants the following year, by reducing the balls of earth and potting them into pots about half the size they had been growing in. After potting, they are placed in a cool frame, and shaded from hot sun for a month. I then expose them to the open air, placing them in the shade from mid-day sun, till about the middle of October, when I remove them into the greenhouse as before. In March and April following they are again replotted, and treated as above named during the former year. It is my practice to take off a quantity of offsets each autumn, so that I have a stock of large two-year-old plants to bloom every season.

By this mode of treatment I succeed in having plants from two to four feet high, stocked with blooming shoots in every part, so as to form a head of flowers about a yard in diameter.

Having a considerable number of plants, I usually turn out some into the open border, choosing a situation where I can have shade from eleven till four o'clock in the afternoon, the intense heat of mid-day sun being injurious to this tribe of *Calceolarias*, they requiring more shade and moisture than shrubby kinds do.

Having an opportunity of collecting seeds, I raise many seedling plants. As soon as the seed is ripe, which from earliest blooms will be the case by the middle or end of July, I sow it in pots placed in a shady part of a hotbed frame or forcing-house. The plants soon come up. I take care to keep the soil moist but not wet, as the tender roots are soon rotted off. When sufficiently strong to pot off, which they usually are by the middle of September, I pot them into sixty-sized pots, well drained, in a compost of equal parts of well-rotted vegetable mould and loam. After potting, they are placed in a cool frame, kept close and shaded from mid-day sun for a week or two, gradually exposing them to the air. When strong enough to bear a removal without injury, I have them taken to the cool but dry greenhouse, or dry cool pit-frame, and place them in a shady but airy situation. By the end of autumn the plants are quite strong, and will withstand a winter's treatment without injury; and by thus getting them forward, they bloom vigorously and profusely, during the following season, from the latter end of April to June. This

mode of immediate sowing of the seed after gathering will not do for *late collected seed*, as *very young* plants are liable to damp off during winter.

A FEW HINTS ON FORMING AND PLANTING ROCKWORK.

BY G. C.

IN laying out a Rockery, we should take into consideration our ultimate object. Should we merely desire a convenient spot for the growth and propagation of small and delicate species, we should take care to prevent the admission of plants or bushes of expanding or tall habit.

As regards delicate species, the main thing to observe is, that they shall be placed close to a stone or brick, in such a way as to be shaded by it from at least the noonday sun; it is true that the branches and leaves may soon grow beyond the shadow, but that is unimportant so long as the roots are moist. Wherever plants are so excitable as to push very early in the spring, the north side of the whole mass of rockwork should be selected for them, unless they are as hardy as Primroses and Violets. When a particular kind of soil is required, it should be provided by enclosing a space with bricks, hidden below the surface; by this means plants requiring peat, loam, clay, chalk, etc., may be made to flourish side by side. If little marsh plants are also desired, a proper place may be made for them on the north side of the general mass by sinking a hollow, puddling it, filling it with bog-earth, and shading it by superincumbent masonry. In this way, charming little things, like *Parnassia*, *Anagallis tenella*, *Menyanthes*, *Drosera*, *Pinguicula*, and *Samolus* may be grown within a few yards of the fragrant herbage from Dover cliffs.

As to the plants to be thus employed, it is useless to give a list of them, because, after all, the power of cultivating particular plants will depend on climate. Rockwork plants will thrive in all their wild luxuriance in Worcestershire, Hereford, and the west, which no art can keep in beauty in Middlesex and Kent. The only way of proceeding is to try experiments, to consult the intelligent nursery-men of the neighbourhood, and to observe what thrives in their care. Every dealer can furnish a list of plants suitable for rockwork, and give instructions which possess local value.

In managing plants after they are selected, the main object is to prevent their overrunning each other; for in rockwork, as well as in other associations, the strong are often inclined to bear down the weak. No prettier spring things can be found for rockwork than *Aubrietia*, *Arabis*, and some of the *Alyssums*; nor any summer plants more useful than some of the broad-leaved *Sedums*, and the Ivy-leaved *Toad-flax*; but they are encroaching neighbours, unless attended to incessantly. They are examples on a small scale of

that curious vegetation which, in some of the West India islands, is called "the Scotchman hugging the Creole," and of which some noble specimens are to be found in the museum in Kew Gardens.

Among the various groups of plants, there are perhaps few more deserving of notice than hardy succulents, inasmuch as they may be grown with success by all classes of the community. They are plants which require very little attention; so tenacious of life are they, that many of them will flourish in situations where no other plants will live except mosses and lichens, rocks and exposed places being the situations in which they are generally found. *Sedum acre*, one of the most common Stonecrops, is often met with in rural districts, occupying the sill of the cottager's window, in pots, growing and flowering profusely. *Sempervivum tectorum*, the common Houseleek, is universally known to grow on the roofs of houses and tops of walls, and generally passed by unnoticed; but if the flowers be examined minutely, they will be found to be "no less beautiful than they are curious in their structure."

For artificial rockwork, we have no other plants that will survive during summer in the crevices and hollows of stones, to give them a lively appearance.

For growing in small vases, too, many species of Stonecrop are well adapted, such as *Sedum Sieboldii*, *S. hybridum*, *S. collinum*; and even some of the smaller sorts, as *S. album*, *S. villosum*, and *S. Forsterianum*, have a good effect planted on the surface of large vases which may contain Fuchsias, or similar plants liable to become bare at bottom. Among the various species of Stonecrop and Houseleek, there are some, such as *Sedum hexangulare* and *anglicum*, which, although they naturally live in dry situations very much exposed, yet will succeed planted in moist places, provided they are not kept too wet in winter; while, on the other hand, were *S. dasyphyllum* or *Sempervivum arachnoideum* planted on the ground, they would soon perish. Such, then, are the sorts best adapted for rocks exposed to the sun.

For those that may be planted in soil, a mixture of peat and loam, in about equal parts, will be found suitable; but for those which it may be desirable as well as necessary to plant upon stones, a somewhat different compost should be used. Many do not require much soil; still they must have something for the roots to take hold of, and that must be of such a nature as not to crumble off when dry, nor yet to be easily washed off by rain. For this, good clay should be selected, sifted heath-mould, and cow-dung; these, in equal proportions, well beat up with water until they become like bricklayers' mortar, will answer the purpose. This may be laid on with a trowel, and the plants immediately planted. The operation should be done in March or the beginning of April, in order that the plants may be a little established before the sun becomes powerful. As such plants generally grow in patches, in order to increase them they only require to be divided.

For those who may be desirous to obtain such plants, the following list contains the names of species most commonly met with:—

Sempervivum montanum	Sedum glaucum
„ globiferum	„ cæruleum
„ soboliferum	„ sempervivoides
„ arachnoideum	„ anacampseros
„ tectorum	„ populifolium
Penthorum sedoides	„ ternatum
Umbilicus pendulinus	„ ciliare
„ erectus	„ cruciatum
Sedum Sieboldii	„ spurium
„ Forsterianum	„ Telephium
„ rupestre	„ acre
„ hexangulare	„ dasyphyllum
„ anglicum	„ hybridum
„ reflexum	„ collinum
„ album	„ oppositifolium
„ villosum	„ Monregalense

If bushes are to be added to rockwork, this point will demand attention, for they soon encumber the place with their roots and light-impeding foliage. When the rockwork is on a small scale, their presence is inadmissible; but if it is at all extensive, as it should be to look well, then there is no dispensing with them, and, well managed, they produce a charming effect. The points to observe are, that they should be placed near the upper level of the rockwork, so as to increase its apparent height; that, if small, they should occupy angles; that, if trailing, they should be placed on the lowest terrace; and that if straight they should be associated with perpendicular lines of stonework, to which they will give additional effect. It is also desirable that they should be for the most part ever-greens.

As bushes for rockwork are far less unmanageable than herbaceous plants, it may be useful to mention, as capital species for various purposes, all the smaller Indian Cotoneasters and Berberries, Savins, Pyracanthas, Cunninghamias, Cytisus, double Furze, if well pruned, Cistuses, Helianthemums, French (not German) Tamarisks, Clanbrazil Firs, Tree Pæonies, Yuccas, Cypresses, Deodars and Araucarias to be thrown away when too large, Laurustinuses, Mahonias, etc., and, in short, any neat-looking plant which is either naturally small, or capable of being kept small by the pruning knife. The disposition and selection of species is so much a matter of mere taste, that there is no apparent advantage in dwelling further upon it.

One other rule will complete the rapid sketch which has thus been thrown off. The smaller rockwork is, the worse it looks, and the more difficult to keep in health, and *vice versa*. The steeper it is, the less it is suited to the growth of delicate plants, and *vice versa*. Thus, supposing that any reason should exist for making it ten feet

DESCRIPTIVE REMARKS ON THE VARIETIES OF HEPATICA.

BY A LADY AMATEUR.

AMONG our early spring flowers possessing more than ordinary interest, one of the neatest, in my opinion, is the pretty Hepatica, in its varieties, as described below. They are well worthy of a place in flower beds or borders in sight of the sitting or drawing room windows; indeed, every garden should be adorned with, at least, some of the under-named early ornaments of the year, which are the harbingers of more extended displays of gaiety and delight, and although more frequently met with in the garden of the cottager, will afford a treat to the admirers of floriculture possessing more extended means. Having for many years successfully cultivated this pretty gem, I consider the following descriptive list of all the varieties in my garden will be acceptable.

The large single blue.—The leaves are somewhat brown, and hairy at their first coming, which after are broad; the flowers are of a clear blue, with many white stamens in the centre.

The small blue.—The leaves of this Hepatica are about half the size of the former, and grow more abundantly together; the flowers are of a pale blue colour, not so large as the flowers of the former.

The purple.—This Hepatica is much like the first, but the flowers are of a deep purple, tending to violet. Small and very double.

The lesser white.—The flowers of this variety are wholly white, of the size of the red or purple, and the leaves somewhat smaller, and of a paler green colour.

The great white.—There is no difference from the last, but that the flower, being as white, is much larger.

The ash-coloured, or Argentive.—Both the leaves and the flowers of this Hepatica are larger than any of the former except the last; the flowers at the first opening seem to be of a blush ash colour, which, in three or four days, decays until they turn almost white, having a show of blush in them till the very last.

The white, with red stamens.—There is no difference between this Hepatica and the first white one, except that the threads in the middle of the flower being white, as in the former, are tipped at the ends with a pale reddish colour, which adds a great beauty to the flowers.

The red.—The leaves of this kind are of a little browner red colour, both at their first coming up and afterwards, especially in the middle of the leaf, more than any of the former; the flowers are of a bright blush or pale red colour, with white stamens.

The double purple.—This much resembles the single purple, but the leaves are larger, and stand upon longer footstalks, and the flowers are very thick of petals, and as double as a flower can be, of a deep blue or purple colour, without visible stamens.

The double blue.—In the colour of this flower is the chief difference from the last, except that it is a little smaller.

The peach colour.—Very neat and pretty,

The single pink.—A very abundant bloomer.

All these plants, with single flowers, grow naturally in the woods of Germany, in many places, and some of them in Italy.

They grow well in a sandy loam, the subsoil being sand. They are thus in a favourable soil for enduring the severities of winter. In order to provide for casualties, it is best to grow two or three plants of a sort in pots, which are kept in a cool frame during winter. Seed should be sown in July. Retain the plants in their seed-pots until the end of March, when plant them out in a sheltered situation at six inches apart; they will then make pretty bushy plants.

OBSERVATIONS ON HYBRIDISING AND CROSS-BREEDING.

BY MR. PETER MACKENZIE, WEST PLEAN, STIRLING.

“ ’Tis meet to mark the sky’s unruffled blue
 Fast deepening into darkness, as the rays
 Of ling’ring eve die fleetly, and a few
 Stars of the brightest beam illumine the blaze,
 Like woman’s eye of loveliness seen through
 The veil that shadows it in vain; we gaze
 In mute and stirless transport, fondly listening,
 As there were music in its very glistening.”

OUR flowers that blossom in the garden of the peasant, and those that find a place in the gardens of the great, have been compared to stars that shine in the firmament of our earth; but “passing away” is the character of many of our finest flowers, and their death long ago brings yet “sad thoughts of hope and beauty gone,” and “the faint sweetness of their parting breath reminds us but of sorrowful farewells.”

“ Surely it is to teach
 Our hearts, by converse with their changeful lot,
 That midst the glories, which the blight can reach,
 Our home is not.”

I was naturally led into these reflections by looking over some old and long lists of florists’ flowers, and the Auriculas, Carnations,

Pinks and Plorees, Ranunculuses, Tulips, and Hyacinths would no doubt be the glory of the day in which they lived, yet, with all their beauty, and all the care which was bestowed upon them, few of their names will be found in the catalogues of 1856; and yet we have numerous constellations of beautiful florists' flowers, and no doubt, although many varieties die out, the stock will be kept up as long as *hybrids* and *cross-breeds* can be produced and encouraged. There are some growers of plants that cannot tell very distinctly the meaning of the terms *hybrid* and *cross-bred*, thus the explanation by Dr. Lindley may be useful to some.

"If the pistil of one *species* be fertilized by the pollen of another *species*, which may take place in the same *genus*, or if two distinct varieties of the same *species* be in like manner intermixed, the seed which results from the operation will be *intermediate* between its parents, partaking of the qualities of both father and mother. In the first case, the progeny is *hybrid* or *mule*; in the second, it is simply *cross-bred*."

Several *cross-breeds* are capable of producing fertile seed, and thus of perpetuating one of the *species* from which they sprang. *Hybrids*, on the contrary, are often sterile (barren), and therefore incapable of yielding seed.

Reasoning from a few facts, and from the analogy of the higher orders in the animal kingdom, it has been believed that all vegetable *hybrids* are sterile; and when sterility is not the consequence of the intermixture of two *species*, it has been thought that such *species* are not naturally distinct, however different the appearance. But facts prove that undoubted *hybrids* may be *fertile*; and when we consider that plants are not analogous to the higher orders of animals, but to the lowest, concerning whose habits we know nothing whatever, it is obvious that no analogical inferences can be safely established.

But we need not wonder greatly at the stars of our earth leaving us, when *mutability* is written throughout the habitable globe, and astronomers tell of the possible extinction of the sun. One of them says, the question cannot fail to suggest itself here, whether this light-producing power may depend in *degree* on the probably ever-changing electric state of a growing globe; whether the sun is now as he was and will be, or only in *one state or epoch of his efficacy* as the radiant source of light and heat. It seems to me most worthy of consideration whether those puzzling phenomena, indicative of an altered heat in our earth, may not pertain in part to this source, to the onward progress of our heat, given through the destiny to which law foreordained him. The changes referred to stretched over epochs in which man was not present, and when, of course, their progress could not be marked; but even now due attention is not paid to the momentous subject; for the delicate measurement of the sun's direct strength is of greatly more consequence than that temperature which arises for the most part from a mere terrestrial

meteorology. The farther heavens, however, come here in aid, and supply this gap in our knowledge, appearing to substantiate the possibility, if not the reality, of such changes. The new star in Cassiopeia, seen by Tycho, for instance, indicated some great change in the light and heat of an orb—far more, probably, than a mere orbital motion. THE STAR *never moved from its place*, and during its course from extreme brilliancy to apparent extinction, the colour of its light altered, passing through the hues of a dying conflagration. Can aught of this be seen in the southern star, one of Sir John Herschel's spoils, which is gradually clothing itself with an extreme brilliancy? Many other stars have altered slowly in magnitude also, preserving rigorous invariability of place; and some, as Sirius, have changed colour—this star having turned from the fiery dog-star of old times, red and fiery as Mars, into the brilliantly white orb now adorning our skies. Is it not likely, then, that the intrinsic energies, to whose development these phenomena must be owing, act also in our sun? That, in short, he also may pass through phases filling up myriads of centuries; once, it may be, shining on Uranus with a lustre as burning as that which now dazzles Mercury. How vast are the effects involved in such a change! The rays of the sun are not merely light-giving, for combined with these, in the same beam or pencil, there are rays whose function is heat-giving; and others equally distinct, which are productive of chemical influence. Now, in the probable march of our luminary, how great a variety in the relations of these three systems of rays may be involved, and of course, what diversities in his action on his dependants! Imagination, clinging to such conjectures, passed to the august conception of this master of surrounding worlds, this majestic globe, himself organized, progressing slowly through his destiny; even acting, as he moves onward, on the inner and proper principle of each planet, drawing from it (which also may itself vary, according to some intrinsic energy or law) every form and manifestation of which it is capable, and conducting them all through a long and wondrous history. How emphatically does even this guess inform us that we have only *sketches* of the history of things—that a leaf or two of the mystic volume is all that ever will be read by man.

From this lofty subject we may descend to our flowers, and say—

“ Stars they are, wherein we read our history,
 As astrologers and seers of old;
 Yet not wrapp'd about with awful mystery,
 Like the burning stars which they beheld.

And with child-like, credulous affection,
 We behold their tender buds expand;
 Emblems of our own great resurrection—
 Emblems of the bright and better land.”

REMARKS ON THE FUCHSIA AS A PLANT FOR FORMING HEDGES.

BY HENRY BURY, ESQ.

No adequate conception can be formed of the beauty of a hedge of *Fuchsia virgata* or *gracilis*, or any of the old and hardy sorts of this beautiful genus, which produce a vast profusion of lovely pendent blossoms. It must be seen to be appreciated.

The following mode of treatment is recommended to ensure success:—

Procure good strong plants with a straight stem, or if any old plants of *Fuchsia virgata* or *gracilis* are growing in the open border, take them up in the spring, and divide and pot the rooted suckers. Pot each sucker into a 24-sized pot, in a compost of one-half well-rotted leaf-mould, and the other rich sandy loam. The newly potted plants should then be placed in a hotbed frame for a fortnight, in order to cause the roots to be excited, after which they can be removed into a pit or greenhouse. Tie each plant up to a straight stick, to which the leading shoot is regularly secured. Cut back all lateral shoots when they get about six inches long, so as only to leave one joint upon each. This shortening is repeated through the season, the inducement to which is, to cause the leading stem to grow vigorously, and at the same time to retain short laterals to push from, when the lead has reached the desired height.

About the middle of June the plants should be shifted, with balls entire, into pots a foot in diameter at the top, using the same kind of compost as before. Keep the plants still in the pit or greenhouse. During the whole of summer they should be *liberally* supplied with water at the roots, and occasionally syringed over the tops. At the end of the season, the leading stem of each will be four or five feet high, and abundantly furnished with short lateral shoots.

Keep the plants in a cool pit or greenhouse throughout the winter, and in April plant out, with balls entire. Previously prepare the ground for their reception, by taking away the poor soil to the depth of half a yard, and filling it up with a well-enriched compost. The plants should be well watered at the time of planting, and frequently during the season. Put a strong stake to each plant to secure it to during summer, and the plants will form a very handsome hedge, and bloom profusely.

Towards the end of November, the entire hedge should be covered with woollen netting, with a mesh of about half an inch square; secure this over the same by a temporary railing along the sides. The netting admits a suitable portion of light and air, but is a perfect security to the plants from injury by frost.

In April, the netting can be removed and the lateral shoots pruned back, so as to leave about six inches of each. This will form the plants into the shape of a close-set hedge. During summer they will spread and bloom profusely.

ON THE CULTURE OF THE AMARYLLIS TRIBE.

BY MR. JAMES SMITH.

SHOULD the following directions be thought worthy of publication in the *Floricultural Cabinet*, they are quite at your service. To those who possess a small stove, I cannot too strongly recommend to their attention the genus *Amaryllis*, containing, as it does, so great a number of species, varieties, and hybrids, which in point of beauty are not surpassed, and I doubt if they are equalled, by any other genus found in British collections. Most of the *Amaryllises* are free-flowering plants, and all of them are of the easiest culture.

I am aware that some of the kinds may be flowered in an ordinary greenhouse, but I find they do better by placing them on the front flue of a vinery. From the 1st of April, the time they are brought into the vinery, they are kept in an increasing temperature, gradually rising from 50° Fahrenheit to 60° during the night; here they remain till about midsummer. They are at first freely supplied with water, and this is continued throughout their flowering season, generally April and May, and still further on, so long as the foliage appears to be in a rapidly growing state. In reference to this particular, some experience is necessary; for most of the kinds will continue to grow, more or less, so long as water is supplied to them. It will, however, be generally found that if the bulbs have been in a dormant state from midsummer of the preceding year, they will commence growing freely when taken into the vinery, and the foliage will be fully matured by the end of June or July; and even previous to this time it will generally be advisable considerably to lessen their daily supply of water. About this time, I place them close together on a shelf in some airy and dry part of the vinery, where they are at the same time exposed as much as possible to the full influence of the sun. In this situation they remain till the grapes are matured and cut, and the house thrown open to the action of the weather, for the purpose of wintering the vines. The bulbs are, of course, allowed to become gradually dry, and the foliage entirely decayed. They are then removed to a dry shade, beyond the reach of frost, and where they are quite free from damp. A little dry litter is thrown over them, if necessary, in very frosty weather. I have sometimes taken them out of the pots, shaken the whole of the earth from their roots, and tied the labels to the bulbs. In this way they require much less room, and may be preserved from the frost with less trouble, than when kept in the pots; but I prefer keeping them in the pots, with the earth about their roots, believing that in this way they flower more vigorously. When the forcing of the vines is again commenced, and the temperature has been raised to about 50° at night, the bulbs are then all looked over, and carefully potted. The soil I use is composed of two parts yellow loam, one of clear white sand, and one of well-decomposed leaf-mould. The pots are from five to six

inches diameter. They are at first very sparingly watered, and this caution ought to be particularly attended to, until they have begun to root freely. Nothing is more prejudicial to these bulbs than to keep the soil in which they are placed continually saturated with wet. Whenever this is the case, it is ten to one but the roots are rotted as soon as they make an effort to establish themselves in the soil, and will scarcely ever thrive until they have been placed in fresh soil.

When in flower, they may be taken into the parlour or drawing-room without any injury, if they can be kept near the light, so that the foliage is not too much drawn. It is usual, when they are kept in rooms, to place the pots in feeders; and to this there can be no objection, provided water is not allowed to remain about the bottom of the pot; when such is the case, it is sure to rot the roots of the bulbs, unless kept in a very high temperature indeed. I have thus endeavoured to describe my own mode of treating this exceedingly beautiful tribe of plants, with an anxious wish that they may become more general favourites.

NOTES ON NEW AND SELECT PLANTS. .

98. DELPHINIUM, MRS. GERARD LEIGH.—A hardy variety. The flowers are of a beautiful *porcelain-blue*, with a large centre of pure white, and a yellow eye. It is very distinct and handsome.

99. D. BELLE-ALLIANCE.—Hardy. Flowers of a dark bright blue, with a white eye. Very dwarf and showy.

100. D. DELICATUM.—Flowers a fine porcelain colour, shaded with lavender, and each has a very distinct white eye. These new Delphiniums may be had at the London nurseries, at 7s. 6d. to 10s. 6d. each.

101. AZALEA, LOUIS NAPOLEON.—An hybrid, in Messrs. Henderson's greenhouse collection. The flowers are *full double*, of a crimson-violet colour. It is exceedingly showy, and merits a place in every greenhouse.

102. AZALEA, THE BRIDE.—The flowers are large, of a superb glossy white, having the appearance of white wax from the substance of its petals. It is a remarkably free-blooming plant. These *Azaleas* are from 10s. 6d. to 21s. each.

103. TROPEOLUM, LOBBII TRICOLOR.—This very beautiful variety is distinguished from all others by the flowers being of a most brilliant scarlet-red colour, edged and spotted with *blue*. It far surpasses every other. It was raised in France, but may be had at the London nurseries.

104. ARCTOTIS ACAULIS, var. *speciosa*. Nat. Ord. *Compositæ*. Sec. *Calendulaceæ* (the *Marigold*).—The old *A. acaulis* is well known to many of our readers, being long an inhabitant of our greenhouses. In addition thereto, three very beautiful *varieties* have been subse-

quently introduced, and are distinguished under the names of *A. tricolor*, *A. undulata*, and *A. speciosa*. The latter has been figured in the *Flore des Serres*, for April, 1004. It is, like the others, a dwarf, stemless plant, much like in appearance to a *Gazania pavonia*, but has a clear green foliage. The flowers are of a rich orange colour, with a circular band of crimson, inside of which is one of green, and the centre disc is nearly black, beautifully studded with numerous golden-tipped anthers. The plant spreads freely, and blooms profusely. Each blossom is about three inches across, in shape like a single common marigold, and, in contrast with its crimson and green rims, dark eye, etc., is very handsome. It will prove to be one of the most beautiful budding plants.

105. VERBENA, FAVOURITE (Henderson) is, without exception, one of the finest, and will doubtless become one of the most noted, bedding Verbenas in every garden throughout England. The trusses of flowers are exceedingly large, and of a rich dark scarlet. The habit is robust and free, and does not require to be pegged down to fill up empty spaces, as is too often the case; but if left to itself, it is unequalled for its uniformity of growth. The whole plant is alike covered with flowers on stout short footstalks, so that it resists the rain perfectly; the side shoots below each flower are always well set with buds, ready to fill up the places as the first flowers pass away; the foliage is handsome and plentiful, a feature that is often overlooked in this plant, as a Verbena with small leaves never looks well, nor, on the other hand, is it pleasing to see large thin foliage. It is an exceedingly valuable bedding variety.

106. PETUNIA, FAVOURITE.—This excellent variety will supersede every Petunia hitherto grown, either for bedding purposes or pot culture. Its superior qualities cannot be better described than in the words of the able and intelligent gardener, Mr. John Smith, of Peel Hall, Lancashire, who raised it:—"The flowers are moderate-sized, with a fine bold outline; colour, a rich bright scarlet, with clear white eye. It is a profuse bloomer, and makes a most effective bed; indeed, it was the most conspicuous bedding plant in the whole of our flower garden, which was filled with the showiest and most dazzling kinds of flowering plants." In consequence of the plant being a second year's seedling, the opportunity of proving its value as a bedding plant has been tried; we saw it in bloom, and assure our readers it equals the description here given.

107. FUCHSIA, EMPEROR NAPOLEON (Banks).—Deep rich scarlet-crimson; sepals extra wide, and beautifully reflexed, and of such substance that the flower has the appearance as if made of wax; corolla deep violet. This Fuchsia is the largest and finest that has ever been sent out; the size, width, and substance of its petals, with other superior qualities, can scarcely be imagined unless seen on the plant.

108. FUCHSIA, VENUS DE MEDICI (Banks).—A great novelty, and the most beautiful Fuchsia that has been introduced for many years;

tube white, with sepals of a bluish pink, or white shaded and striped with pink; corolla deep violet-blue, large and beautifully formed: yet the above description will scarcely give an adequate idea of its beauty, as the colour is quite new among Fuchsias, but we have no hesitation in saying it will prove one of the finest varieties for exhibition. The habit of the plant is superior to any other white Fuchsia in cultivation; the flowers are large, well reflexed, and elegantly formed; the sepals are very long, which gives the flower a most striking appearance.

109. *FUCHSIA, DONNA JOAQUINA* (Banks).—Scarlet-crimson tube and sepals, the latter splendidly reflexed; the tube very short and thick; corolla violet-blue, a striking and novel colour, the texture of which is exceedingly fine, giving it the appearance of a thick leathery substance.

110. *FUCHSIA, COUNTESS OF BURLINGTON* (Story).—Scarlet tube and sepals, elegantly reflexed, with a beautiful pure white corolla; habit of the plant graceful. This may be considered the finest white corollaed Fuchsia yet sent out.

111. *FUCHSIA, VOLCANO DI AQUA* (Banks).—Rich glossy scarlet, with well-reflexed sepals; corolla violet, extra large. A wonderful flower for size, and a very free bloomer.

112. *FUCHSIA, CHARLEMAGNE* (Banks).—Rich scarlet; sepals well reflexed, with a large, barrel-shaped, violet-purple corolla; dwarf habit, and free bloomer. Very distinct and novel.

113. *PHYTELEPHAS MACROCARPA*. Nat. Ord. *Phytelephantheæ*. *Large-fruited Ivory-Plant*. This most useful Palm is confined to the continent of South America, where it inhabits damp localities, as the banks of rivers, etc. It was introduced to this country by Purdie, and has bloomed at Kew. It is mostly found in separate groves, rarely intermixed with other plants. The trunk is generally about six feet high, crowned with from twelve to twenty leaves of from eighteen to twenty feet in length. The segments are about three feet long and two inches broad, and mostly amount to about 160 in each leaf. The fruit is produced in clusters as large as a man's head, each containing six to nine seeds. The tree bears from six to eight of these clusters at one time, each head weighing, when ripe, about twenty-five pounds. The nut of this plant so closely resembles ivory, as often to be mistaken for the animal product. Small articles are now manufactured of it instead of the elephant's tusks. The nuts are imported into this country in great quantities, some years as much as 150 tons have been brought to England alone. They are sold at very low prices—in August, 1854, 1000 of them only realized 7s. 6d. Not only is this Palm most valuable for the ivory it produces, but when the seed first makes its appearance, it contains a clear insipid liquid, with which travellers allay their thirst. There is also a most delicious beverage made from it, and sold in New Granada at one real a pound.—(*Bot. Mag.*, 4913, 4914).

114. *SAXIFRAGA CILIATA*. Nat. Ord. *Saxifrageæ*.—It is found

inhabiting the mountains of Northern India. It blossoms early in spring, and is a very pretty species; flowers white, an inch and a half across. Being a well-known herbaceous perennial, farther description is unnecessary. (*Bot. Mag.*, 4615.)

115. *CATTLEYA SKINNERI*, var. *parviflora*. Nat. Ord. *Orchidaceæ*.—An hybrid, first brought to this country by Mr. Skinner, from Guatemala; the flowers of which are small, not half the size of *C. Skinneri*, and of a dull purple. (*Bot. Mag.*, 4916.)

116. *COFFEA BENGHALENSIS*. Nat. Ord. *Rubiaceæ*.—Dr. Roxburgh states this species to be a native of the mountains of the north-eastern frontier of India, from whence it was sent to Calcutta, several years ago. It forms a small shrub, producing its flowers solitary or in pairs, at the end of the branches, each one about two inches across, tube slender, an inch long, the limb of five obovate spreading lobes, white. (*Bot. Mag.*, 4917.)

QUESTIONS, ANSWERS, AND REMARKS.

TO DESTROY MICE IN A GARDEN.—Being much infested with mice in my frames, will you allow me to ask your correspondents what is the most ready mode of destroying these pests? [Bury pickling jars in the ground, with their mouths even with the surface; pour a little water in them, and the mice will fall in during the night and be drowned.—*Editor*.]

GRASS SEEDS FOR A LAWN.—A clergyman wishes to know from the Editor of the *Cabinet*, or any of his obliging correspondents, what is the best admixture for sowing a grass lawn. [We recommend our clerical correspondent to try the following, which is excellent. *Poa nemoralis* 1 lb.; *Poa nemoralis sempervirens* 1 lb.; *Poa trivialis* 1 lb.; *Festuca duriuscula* 2 lbs.; *Festuca tenuifolia* 1½ lb.; *Lolium perenne tenue* 12 lbs.; *Trifolium repens* 4 lbs.; *Trifolium minus* 1 lb.; *Cynosaurus cristatus* 2 lbs.—*Editor*.]

PLANTS FOR A WARD'S CASE.—Having purchased a small Ward's case, and being a lover of plants, though only a beginner, I shall feel indebted to you, Mr. Editor, or to any of your correspondents, who would supply me with a list of such stove and warm greenhouse plants as are quite suitable for cultivation in my case. [*Ferns*: *Asplenium cuneum*, *A. diversifolium*, *A. cicutaria*, *A. flabellata*; *Adiantum cuneatum*, *A. pubescens*, *A. lucidum*, *A. assimile*, *A. affine*; *Cassebecra hastata*, *C. pedata*; *Platyloma rotundifolia*; *Anemidictyon phyllitidis*; *Blechnum gracile*, *B. lanceola*; *Pteris serrulata*, *P. heterophylla*, *P. longifolia*; *Doryopteris palmata*; *Nephrolepis pectinata*; *Aspidium trifoliatum*; *Cyrtomium falcatum*; *Doodia caudata*; *Diplazium Shepherdii*. *Lycopodiums*: *Lycopodium denticulatum*, *L. uncinatum* (the blue one), *L. flabellata*, *L. viticulosa*, *L. umbrosum*. *Orchidææ*: *Maxillaria punctata*, *M. rufescens*, *M. variabilis lutea*; *Brassia chlorostachya*; *Oncidium Suttoni*; *Epidendrum cochleatum*; *Tillandsia bulbosa*; *Tetranema mexicana*. The *Tillandsias* and the *Orchids* should be suspended from the roof.—*Editor*.]

A MANGROVE SWAMP.—The banks near the lagoon were low, and the ground back of them apparently swampy, and densely covered with Mangrove trees. This tree is universal on the Mosquito coast, lining the shores of the lagoons and rivers, as high up as the salt water reaches. It is unlike any other tree in the world. Peculiar to lands overflowed by the tides, its trunk starts at a height of from four to eight feet from the ground, supported by a radiating series of smooth reddish-brown roots, for all the world like the prongs of an inverted candelabrum. These roots interlock with each other in such a manner that it is utterly impossible to penetrate between them, except by laboriously cutting one's way; and even then an active man would hardly be able to advance twenty feet in a day. The trunk is generally tall and straight, the branches

numerous, but not long, and the leaves large and thick; on the upper surface, of a dark, glistening, unfading green, while below, of the downy whitish tint of the poplar-leaf. Lining the shores in dense masses, the play of light on the leaves, as they are turned upward by the wind, has the glad billowy effect of a field of waving grain. The timber of the Mangrove is sodden and heavy, and of no great utility, but its bark is astringent, and excellent for tanning. Its manner of propagation is remarkable. The seed consists of a long bean-like stem, about the length and shape of a dipped candle, but thinner. It hangs from the upper limbs in thousands, and, when perfect, drops, point downward, erect in the mud, where it speedily takes root, and shoots up to tangle still more the already tangled Mangrove swamp. Myriads of small oysters, called the Mangrove oysters, cling to the roots, among which active little crabs find shelter from the pursuits of their hereditary enemies, the long-legged and sharp-billed cranes, which have a prodigious hankering after tender and infantile shell-fish.—*Bard's Waikna.*

WISTARIA SINENSIS.—This, without exception, is the most handsome and graceful of hardy climbing shrubs. It will succeed wherever a dry subsoil is obtainable, and where there is room for an upright shrub to grow. Far north it is found to thrive well in the open border, trained as an upright shrub, or round wooden stakes and trellis-work. In such situations it flowers luxuriantly. It is very suitable for planting against pillars, or for forming a principal feature in the covering of an arbour. In the most limited flower garden, it will form an extremely graceful object when trained to stout wirework, or wooden stakes. If planted in heavy or retentive soils, it should be placed on a mound of gravelly soil. To produce a uniform quantity of bloom, cut back the present year's shoots in autumn, to within five or six inches of the last year's joints. In summer following, each ripened side shoot that springs from the main stem will become flower-bearing branches. No cottager's garden or wall should be without this highly ornamental plant.

CAMELLIAS ON WALLS.—The Camellia may be grown very well out of doors in warm situations, on trellises of the span form, or parallel against a wall. The ground should be composed of free sandy loam, mixed with turfy peat and leaf-mould; the border may be about three feet broad—a convenient length, and a foot and a half deep. In the bottom lay about nine inches of broken bricks and a little gravel, that the roots may have plenty of drainage, which is a very essential condition. In winter the plants should be covered with mats, taking care to cover them completely. In summer they should be watered with water in which a small portion of guano has been put. They should be trained in such a manner that their flowers and leaves may be perfectly developed.

CYDONIA JAPONICA.—This handsome shrub (better known as *Pyrus Japonica*) is particularly worthy of attention as a hardy spring-flowering shrub, especially if trained in the open border as a standard. Select one main leading stem, and cut away the other branches, fastening the leading shoot to a stake about six or eight feet in height. If thus treated, the plant, which is of a pendent habit, will speedily assume a handsome pyramidal form, of very neat appearance. When in flower, it will form a gorgeous object, being covered with fine scarlet bloom. In order to propagate it to form a stock, the following treatment will be found very successful. Cut some of the thin roots into lengths of three or four inches, which insert round a large pot, and cover with a bell-glass; or you may lay them in a south border under a wall, in rows, slightly covered with soil. They will make shoots the first season. This method is much preferable to increasing by suckers.

THE SOAP BERRY (*Sapindus saponaria*).—The nuts of this tree were formerly brought to England for waistcoat buttons; some were tipped with gold, and others with different metals; they were very durable, as they did not wear, and seldom broke. The skin and pulp which surround the nuts, are used in America to wash linen, but being of a very acrid nature, are apt to burn and destroy it. The seed-vessels lather freely in water, and will, it is said, cleanse more linen than sixty times the weight of soap; the water in which the tops or leaves have been steeped or boiled has the same quality, though in a less degree. The seeds are round and hard, have a fine polish, and are even now often used by the Spaniards for buttons. The whole plant pounded, and steeped in ponds, rivulets and creeks, intoxicates and kills the fish.

VITAL PRINCIPLE IN PLANTS.—What the "vital principle" is, or where it is to be

found, I pretend not to know; like its Almighty Author, "no man hath seen it at any time," yet it is the *punctum saliens* which throbs through the system of vegetation, and the source and spring of all its functions and productions; a dense and mysterious veil, however, conceals it from the hierophant. The philosophy of man has never withdrawn this inscrutable *Ens* from the adytum where it remains enshrined. I am aware that an interdict like this is not palatable in these days, when the wit of our philosophy soars so high above *mystery*, and would deny what it cannot solve. This, however, is not the philosophy which I have been taught; neither does it contain the elements of that of Bacon; it will not do in this case to cut the Gordian knot we cannot untie; it makes the matter worse. It seems to my mind as demonstrable as any problem in Euclid, that the "principle of life" is one *sui generis*, superadded to organization. Some there are who ascribe all the phenomena of life to mere *organization*, or a peculiar arrangement of the ultimate atoms, or *molecules*, as the French call them; and some have ascribed an "innate vitality" to these atoms; others may whistle to the tune of this dance of dust, and quadrille or waltz of molecules, but I must stand aloof from their eccentricities. To-day we see the plant a beautiful living thing, arrayed in a vesture of green, and blossoming in beauty, unfurling its ensigns to the sun, and all its functions moving in harmony, and obedient to the "principle of life;" to-morrow that plant has suffered an eclipse. There is now a sad reverse; it is a leafless and a lifeless thing. Its flowers and foliage are scattered to the four winds of heaven; its "silver cord is loosed"—the principle of life has fled, and the fountain of beauty is dried up. The most exquisitely finished and most delicate specimen of mechanism, with its varied wheels, pivots, and pinions, superadded to its spring and balance, still wants its compensation: curb to regulate its chronometry, and the artist's hand must wind it up; and can we doubt that the Master-key that wound up the machinery of vegetable creation hangs at the girdle of infinite intelligence? The "principle of life" is neither *heat* nor *electricity*, nor any other agent with which we are acquainted; it is far more subtle and recondite. These are merely, if the term be permitted, the *tentacula* of its operations; it can sleep for thousands of years in Egyptian tombs and mummy-cases, or remain for ages many hundred fathoms deep in the rocky recesses of the globe, or at unfathomed depths in seas and lakes. It can run the gauntlet of fire in temperatures that would scorch or scald; it can live in the crater of the volcano, or in cerements of ice, or a mantle of snow; its identity remains unimpaired through lapse of time or change of circumstance. These positions, startling though they may seem to be, can be substantiated by indubitable proof. Some curious cases have already been glanced at, and a few more may suffice. I took nine seeds out of a *roasted* apple, and every one of them grew. Malted barley has grown, and peas and cress, etc., after being roasted and boiled, were capable of germination; while the seeds of elder-berries, after being boiled, grew very well. Jessie, in his "Gleanings," mentions seeds that have grown, brought up from a depth of 360 feet, in boring for a well; and seeds found in very ancient tombs have readily sprung up. Some seeds were discovered in an ancient British tumulus; they were sown, raspberries sprung up, and fruit has been collected from the plants. A bulb was taken from the withered hand of an Egyptian mummy, and it has since grown; various seeds discovered in these mementoes of mortality have grown. Some grains of the *Triticum durum*, found in the body of a mummy, grew with me; as well as seeds of Indian corn, found in one of the graves of the Incas of Peru. A plant of *Phormium tenax*, in the *Jardin des Plantes*, which was apparently reduced to charcoal by a conflagration, has risen, like a vegetable phoenix, from its ashes. An elder-tree, near Matlock, was cut down, and subsequently remained under a stack, where it was consumed, apparently by fire; in its after-adventures, it became a corner-post, when it budded, and is now a thriving tree.—*Economy of Vegetation.*

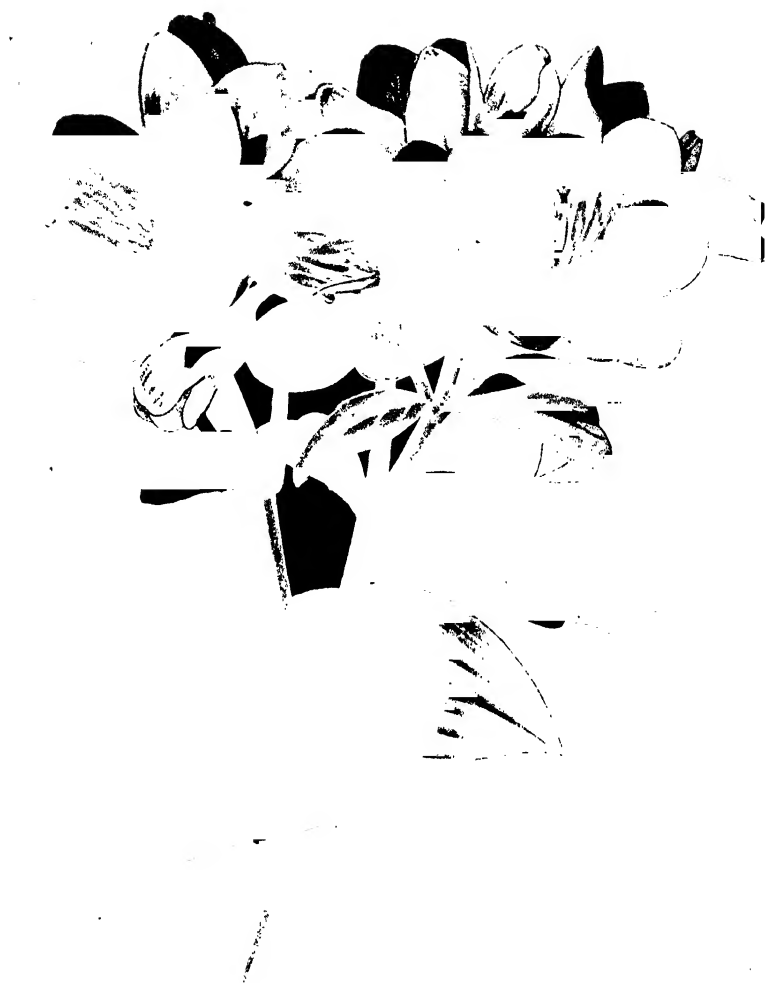
DIELYTRA SPECTABILIS.—Although the *Dielytra* is properly classed as a spring-flowering plant, yet, if propagated by cuttings of the young shoots in the spring, and planted out in June in a sheltered situation, it will continue to throw up a succession of blooms till late in the season. It thrives best in a rich light soil, and should be plentifully supplied with water in dry weather. Last season I saw a bed so treated, in the front of a greenhouse, in bloom in September, and it appeared likely to continue in flower much longer, if frosts did not occur. To procure a stock of plants, a few old

roots should be placed in heat in February; take off the young shoots as they advance, and strike them in a similar way to Dahlias; they should afterwards have a shift, and be kept in a frame till all danger of frosts is over, when they may be planted out as above.

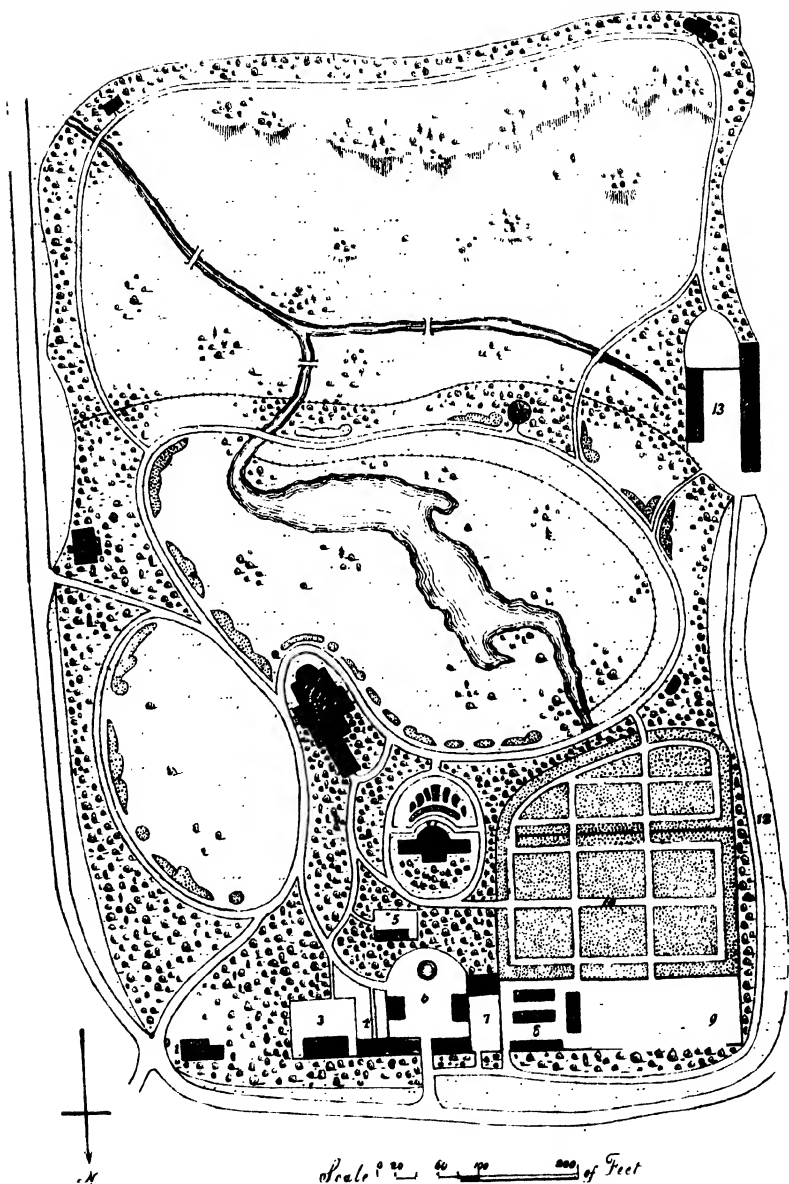
ON AN EASY MODE OF FUMIGATING A GREENHOUSE, PIT, ETC.—Not having a house, I am obliged to winter my plants in a cold pit, which I have found a difficulty in fumigating, until I thought of the following plan:—Take a piece of touchpaper, and lay on it a thin layer of tobacco; then roll it up, and tie loosely. Light one end, and place it in a flower-pan in the house or pit. I think half an ounce, used in this way, is equal to an ounce with the bellows; and it is not a tithe the trouble, as it does not require any attention after being lighted.—*A Constant Subscriber.*

BEST TWENTY-FIVE PINKS, AND BEST THIRTY PANSIES.—*Pinks:* Adonis (Maclean), rose, changing to rosy purple. Beauty of Salt-hill (Turner), reddish purple. Brunette (Maclean), very dark, fine petal and distinct. Criterion (Maclean), purple. Colchester Cardinal (Norman), purple. Duke of Devonshire (Turner), rose, large and full. Esther (Turner), rose. Field Marshal (Hale), rose, constant and well formed. Henry Ward (Turner), purple. Harry Turner, dark purple. James Hogg (Bragg), fine dark. John Stevens (Looker), purple, stout petal. Jupiter (Bragg), purple. Lola Montes (Costar), purple. Lord Charles Wellesley (Bragg), rosy purple. Mrs. Maclean (Maclean), lilac rose. Mr. Hoyle (Looker), red, very constant. Mr. Hobbs (Looker), rosy purple. Mr. Weedon (Hale), purple, smooth stout petal. New Criterion (Maclean), red, changing to purple; very fine. Purity (Turner), rose; small, fine quality. Richard Andrews (Turner), rosy purple, a fine show flower, very smooth. Richard Smith, Esq. (Looker), purple. Sarah (Turner), dark, full, without being confused. Sir Joseph Paxton (Bragg), rosy purple.

Pansies: Alba Magna (Thomson), fine white self. Brilliant (Turner), yellow ground, bronze top petals and margin. Comet (Turner), deep yellow ground, with broad margin of reddish crimson. Duchess of Sutherland (Turner), white ground, violet-purple margin, large eye, very fine. Duke of Newcastle (Turner), yellow ground, purple margin, large dark eye, smooth, and good shape, fine. Earl Mansfield (Dickson), white ground, broad purple margin, small eye, smooth, large, and striking. Egeon (Turner), deep yellow ground, violet-purple broad margin, smooth, and fine form. Emperor (Hales), rich yellow ground, top petals and margin deep maroon, extra fine. Father Gavazzi (Holland), rich yellow ground, with broad margin of crimson-purple, and large prominent eye; a large and striking flower. France Cycote (Grieve), straw and purple. Great Britain (Parker), yellow ground, with broad margin of rich crimson-purple, large eye, good. Lady Carrington (Hunt), white ground, light purple. Lord John Russell (Turner), golden yellow ground, with broad margin of rich velvety crimson, large dense eye, fine form, and smooth. Lord Palmerston (Turner), golden yellow ground, with rich plum-purple top petals and margin, large eye, fine form. Lord Raglan (Turner), yellow ground, with broad margin of rich bronze-purple, very large and fine. Marchioness of Bath (Wheeler), white ground, blue top petals, margined with the same shade. Marion (Dickson and Co.), straw and purple, large and fine form. Marquis of Bath (Wheeler), rich yellow ground, broad dark maroon purple border, large prominent eye; an improvement on Duke of Norfolk. Memnon (Turner), rich velvety dark purple self; large, fine form, and very smooth. Miss Stewart (Hales), pure white ground, purple top petals and margin, smooth, and good form. Miss Talbot (Dickson), pale straw ground, bleaching to white; rich deep velvety purple, broad margin, smooth and fine. Mrs. Beck (Turner), white ground, and fine dark purple. Mrs. M. Hamilton (Nasmyth), white ground, and fine dark purple, large. Monarch (Hale), deep golden yellow ground, top petals rich velvety dark maroon, lower petals margined with the same colour, bold dark eye; the best of its class. National (Turner), light purple top petals, and narrow margin of the same colour. Ophir (Widnall), large yellow self. Royal Albert (Turner), beautiful shaded purple self, very smooth. Royal Standard (Dickson), pale straw, and medium margin of rich velvety purple, good eye, smooth, large, and fine form. Royal Visit (Dickson), dark purple top petals and broad margin, extra fine. Satisfaction (Turner), rich yellow ground, with medium margin of crimson-purple, very prominent fine eye, very large, smooth, extra fine.



EXACUM ZEYLANICUM



The Floricultural Cabinet.

JULY, 1856.

ILLUSTRATION.

EXACUM ZEYLANICUM. *Nat. Ord. GENTIANEE.*

THE interesting genus *Exacum* comprises about twenty species, natives of the high mountains of the tropical regions of Asia. *Exacum Zeylanicum* (selected for the illustration of our present number) is one of the handsomest of its tribe, being a free-growing plant, and very ornamental. The stem is erect, terminating in a branching, corymbose head of flowers, of a most lovely blue, and furnished with large yellow anthers. The leaves are sessile, elliptico-lanceolate, of a lively green. The plant is an annual, and first bloomed in the Botanic Gardens of Dublin, where it was raised from seeds received from Ceylon. It merits a place in every stove or warm greenhouse, being a plant of easy cultivation. Seed should be sown early in the spring, and the young plants potted off singly as soon as ready; the soil most adapted for their growth is of an open turfy nature; free drainage is essential, together with a liberal attention to watering.

Exacum is derived from *ex*, out of, and *ago*, to drive; it being considered by the natives an excellent antidote to many poisons.

NOTES ON THE BOTANY OF THE MONTH.

BY MR. EDWARD SHEPPARD, BURY.

IF the Editor of the *Cabinet* will allow me to occupy a small space in its pages, I propose to contribute a few remarks on the numerous wild gems which adorn our fields and meadows, too often, alas! neglected and unnoticed by those who take an interest in many plants of no greater pretension, brought perhaps from foreign shores to grace our parterres and flower-beds, to the neglect of the old friends of our native fields and woods. I do not, however, wish to

of a colour approaching very nearly to the Roman imperial purple. There is a variety, well known, with white flowers, and this is perhaps one of the greatest enliveners in borders or plantations of evergreens which can be placed amongst them; when planted in front of the common Laurel the effect is very pleasing. The *Digitalis*, which at present performs so essential a part in the *Materia Medica*, appears to have been unknown for its virtues to the ancient sons of Esculapius, and it is to English students of the healing art that the world is indebted for the discovery of the valuable medical properties of this pretty plant; the most remarkable effect which this medicine produces on the human frame is the diminution of the frequency of the pulsation of the heart, and consequently of the arteries. Our poets have frequent allusions to this plant. Cowley says—

“The Foxglove on fair Flora’s hand is worn,
Lest while she gathers flowers she meet a thorn.”

Brown describes Pan as seeking flowers of this plant to place on the hand of his mistress:—

“To keep her slender fingers from the sun,
Pan through the pastures oftentimes hath run,
To pluck the speckled Foxgloves from their stem,
And on those fingers neatly placed them.”

One of the sweetest of our poets, the youthful and lamented Keats, alludes to the fondness of the bee for this flower, when he says—

“Let me thy vigils keep,
’Mongst bowers pavilioned, where the deer’s soft leap
Startles the wild bee from the Foxglove bell.”

The light down which covers the stalks induced the poets to make

this plant an emblem of youth; but others, in allusion to the cap and bell form of the flowers, have made it the emblem of folly.

Two or three varieties of the pretty Willow-herbs, *Epilobium*, may now be found in full bloom; amongst which we may particularly mention the narrow-leaved variety, *E. angustifolium*, which is found on the banks of our rivers and ditches, growing from two to three feet high, bearing large pink flowers of five petals, each attended by a narrow leaf, and growing upon a long seed-vessel, which appears as a stalk to the flower, but afterwards splits up, scattering to the winds the seeds, which are provided with a tuft of soft down to facilitate their carriage, like miniature parachutes before the breeze. Another species is the broad, smooth-leaved Willow-herb, *E. montanum*, which, although not so tall a plant, aspires to grow on walls, the roofs of cottages, and shady banks. It may be readily distinguished from the former by its dwarfer habit, and smooth broad leaves. The flowers are rose-coloured, and the stems red. The Rose-bay Willow-herb is a plant possessing such liveliness and elegance as to be seldom surpassed; yet it has been too generally rooted out of the parterre, without being admitted to more suitable situations. It is admirably adapted for shrubberies, whilst its rapid increase by its creeping roots renders it rather unfit for the quarters of choice plants, but these objectionable qualities in the flower garden are good qualifications for other situations. It is called Willow-herb from the resemblance which its leaves bear to the willow. *E. hirsutum*, with hairy leaves, is commonly denominated by the curious appellation, "Codlings and Cream."

I know of few plants more showy than the purple-crimson Loosestrife, *Lythrum salicaria*, a handsome, tall-growing plant, frequently found in ditches and watery places, growing from three to four feet high; it merits cultivation by all, though it is rarely seen but in cottage gardens. When a boy, I remember the beautiful effect which a long border of this plant presented in the garden of my grandfather, who was a passionate lover of flowers. I do not know anything so pretty as this flower for two or three of the summer months. The plants are crowded with blossoms of a clear purple-crimson, and borne in whorls of four or five together, with two leaves under each whorl. The stem is square and somewhat hairy; the leaves in pairs. It may easily be propagated by division of the roots.

In uncultivated sterile spots and by waysides, we may see the Mulleins, *Verbascum*, coming into flower. One, *V. thapsus*, the common variety, sometimes attains eight feet in height, and in this state has a very stately appearance, the tall stems being nearly covered from top to bottom with pretty flowers, large, and of a delicate yellow. The leaves resemble flannel in their texture, and are very downy, of a greyish green. It is called by country folks Shepherd's Club. There are others of this family now in bloom;

the Black Mullein, *V. nigrum*, and the White Mullein, *V. lychnitis*; the leaves of the latter have a very white appearance.

Climbing boldly on our hedgerows we may see the *Convolvulus sepium*, the Greater Bindweed, so named from its twining nature; perhaps we have not a native plant that displays a more beautiful corolla than this. On the wayside hedge it expands its handsome, monopetalous, trumpet-formed flowers in a dress which rivals the drifted snow for purity, and were it less common would create more general admiration.

"How fair her pendent wreath
O'er bush and brake is twining,
While meekly there beneath,
'Mid Fern and blossom'd Heath,
Her lovely sisters shining,
Tinged with such tender hues as streak
A slumbering infant's glowing cheek."

Who is there who has not also admired the common small Bindweed, *Convolvulus arvensis*, alluded to in the closing lines of the above couplet: a variety more humble in growth than the former, but a more formidable pest to the farmer; for the one confines itself to the hedgerow, whilst the latter travels the whole field over, entwining itself around the stalks of corn for support, or upholding itself by whatever comes in its way, not even refusing to embrace the nettle as a prop on which to display its simple beauties. Nature has endowed this native flower of our fields with an agreeable fragrance, and it possesses the means of protecting its organs of fructification from the rain and humidity of the night air by the help of folds in the cup, which constantly and regularly open with the rising sun, and close as the day decreases or on the approach of rain. The nectary of this little flower also displays the wise provision which has been made by nature to secure the saccharine juice, so necessary to the completion of the seed. The stigma of this flower is supported on arches over the bottom of the cup of the corolla, leaving only such small openings between the piers that form the arches, as to bid defiance to the plunder of the bee or insects of any considerable size. This species of Bindweed has a perennial root, of a milky white substance, which penetrates and ramifies so deeply into the earth as to render it very troublesome to eradicate or destroy. In trenching land we have frequently seen it at the depth of three feet from the surface. It is generally considered a good indication of gravel lying not far beneath. Miss Twamley says of this pretty pest—

"We merry flowers are running
The meadow mazes through,
And be the farmers e'er so cunning,
We are as cunning too;
Now up an ear of barley
We nimbly twist and twirl,
To deck its brown stem early
With a wreath of pink and pearl."

That old-established favourite of our gardens, *Convolvulus minor*, or *tricolor*, to my mind the nearest approach to heavenly blue in the tint of its beautiful blossoms, though allied to the above, is not a British plant; but few orders are more ornamental than that of the *Convolvulaceæ*, and several species have long tenanted our gardens; the present was introduced from Barbary so long back as 1629, for we find it mentioned at that time along with the *major* variety, being received through Italy and Spain from its native country. The latter, when employed to cover the trellis-work of arbours, verandahs, etc., displays the most beautiful shades of blue, violet, white, pink, and crimson; some delicately shaded and striped—

“as stands the rainbow in the storm,
Changing its hues with bright variety.”

Another British plant, which has always pleased me, to be found mostly in streams of running water, along with water-cress and similar plants, is the Brooklime Speedwell, *Veronica beccabunga*. Its small dark blue flowers have a very pretty appearance, standing up above the deep green of its foliage, and many a sequestered streamlet is now covered with its neat little blossoms.

In our ponds and ditches at this time of the year we may frequently find the Flowering Rush, *Butomus umbellatus*; it is the only British plant which belongs to the ninth Linnæan Class, *Enneandria*. Surrounded by its narrow, upright, sword-like leaves, its umbels of five large pink flowers have a handsome appearance; it is indeed a fine plant, contrasting well with the yellow Iris and white Water Lilies, with which it dwells in the waters. When gathered it speedily droops, like all aquatics, for

“the glow of her roscate charms has fled,
When a few fleeting hours have passed o’er her head;
For no more, ’mid the grass in the verdant mead,
Do the tranquil waters her loveliness feed.”

This is a plant which ought to be more generally cultivated than it is; it will grow by the sides of any piece of water, rivulet, or any place of copious moisture, where the roots may be mostly in water, particularly in any boggy or marshy part, where this and several other of the aquatic tribe may be introduced, and where they will flourish and render such places very ornamental. The Flowering Rush may be propagated either by division of the roots or by seed. The latter should be sown as soon as ripe in any boggy place, and left to nature; if roots are divided, it may be done at any time after flowering, and should be planted at once in the place allotted to them, where they will abide for years, and flower in a charming manner annually.

Two interesting little plants may be now met with in flower, in bogs and pools, *Pinguicula vulgaris*, Common Butterwort, and *Utricularia vulgaris*, Bladderwort. The first has pretty, violet-coloured flowers, with leaves at the base of the stalk, yellowish, and

soft in texture; the latter with yellow flowers, the leaves curiously bladdered, divided, and floating: both are of neat-growing dwarf habit. There are some species of each more rarely to be met with.

Our fields are frequently at this time abundantly supplied with several varieties of the *Scabious* family; all are pretty. *S. arvensis* is the tallest, growing three feet high, bearing its leaves and branches opposite, each terminating with a close flat head of flowers, of a fine blue; the whole plant is hairy. Another species is the *S. succisa*, or Devil's Bit, found in great quantities in the southern part of the kingdom, on heaths, in woods, etc. The flowers are of a delicate pinky blue colour, the stem somewhat hairy, and the root appearing as if bitten off half-way, which has given rise to its vulgar name. Some foreign species are old inhabitants of our gardens. The Indian or Sweet Scabious has the additional attraction of a delicious perfume, and its flowers are of various hue, from pale purple to intense rich dark crimson, approaching to black, and of a velvety texture. A poet, before quoted, says justly—

“Can regal purple with the Scabious vie?”

Our banks are now clothed with the several varieties of Lady's Bed-straw, *Galium*. There is the yellow variety, *G. verum*, having very abundant clusters of minute pale yellow flowers, and whose roots are used as a red dye for woollen cloth; the Great White Bed-straw, *G. mollugo*, of a more straggling habit, the flowers in little white tufts, and the stems very long; the Water Bed-straw, *G. palustre*, growing on the borders of ditches and ponds, the stems hairy, and the whole panicle of flowers much spread out; and the Crosswort Bed-straw, having yellow flowers, with four leaves together in a whorl.

On old walls we may find in some localities great quantities of that singularly neat and elegant little trailing plant, the Ivy-leaved Toadflax, *Linaria cymbalaria*. I have seen the walls of old mansions and ruins adorned with very large tufts of this plant; one locality where I have seen it growing in great abundance is by the water-side, on the old walls of the Archbishop's palace at Mortlake, in Surrey. Although it is doubtful whether this is a true indigenous plant in England, yet it appears to have become for a length of time naturalized, and our climate suits it well. It is easy of culture, and prolific of seed; no rockwork can be considered complete without it. The flowers are small, of the common Snapdragon form, pale lilac, with a touch of yellow on the lip; the stems are long and trailing; the leaves ivy-like, green above and purple beneath. It is often grown in pots, but does best when on rockwork or old walls; it is the neatest of all our trailing plants.

Another of this genus flowering the present month is the Yellow Toadflax, *L. vulgaris*, a fine, upright-growing, tall species, with smooth leaves, of a pale bluish green, and light yellow flowers. It decorates

the banks of cornfields, pastures, and hedges ; when in mass it is a very charming object.

Some of the genus *Pedicularis*, Red Rattle, may now be found in bloom. *P. palustris*, Tall Red Rattle, and *P. sylvatica*, the Marsh Rattle, are nearly similar, the latter being, however, of dwarfer habit ; they are elegant plants, neither attaining quite a foot in height, and though of humble growth, are well worthy of our notice. The flowers are of a fine deep pink, and the leaves very handsome, being of a beautiful fresh green colour. The ripe seeds rattle in the seed-vessels, hence the name. They grow in meadows and pastures, preferring a rather moist soil. The common Yellow Rattle, *Rhinanthus cristagalli*, is a plant much resembling the above named, but belongs to a different genus. It is one of the few gaping-flowered plants of a yellow colour ; it is met with in nearly every meadow, rattling its capsules of ripe seeds at our tread. The plant is quite smooth, rather more than a foot high, and very little branched. I have made very pretty vegetable skeletons of the calyces of this plant, and whilst on this subject I may be allowed to say that the calyces of several plants are admirable when properly prepared : such are those of *Hyoscyamus*, Henbane ; all the *Campanulas* ; *Nicandra* ; *Datura stramonium* ; *Physalis*, or Winter Cherry ; the capsules of the Poppy ; leaves of Box, Apple, Ivy, Holly, Magnolia, Tulip-tree, Poplar, Passion Flower, etc. To prepare them, place a *quantity* of the leaves, etc., in a flat shallow pan, and cover them with water ; let them remain in this state, without changing the water, for six weeks or a couple of months, exposed to the sun and air—a few drops of muriatic acid assist the process. At the end of that period the vegetable matter will be sufficiently decomposed, most of it may be washed off, and any adhering removed by a few dabs with a soft-haired brush.

To bleach them, damp the preparations, and place them in a tight-fitting box, with a little brimstone burning in it ; in an hour they will be very white. I dry them ; and gum them on leaves of black paper, in a book, in which state they look extremely interesting. The more leaves put to soak at once, the better they will prepare.

On some of our old commons, at this season, we may find that curious parasite the Broom-rape, *Orobanche*, of which we have several varieties, each somewhat different, but all rather scarce. It has a singular appearance, and consists of a thick fleshy stem, very brittle, knobbed at the surface of the ground, and bearing all the way up tapering scales, brown coloured, and is destitute of leaves or branches ; at top it bears a large coarse spike of gaping flowers, each having a small brown bract under it. It is a vegetable blood-sucker, unable to draw direct from the earth its nourishment, and therefore attaches itself to some other plant, upon whose vital juices it feeds. *O. major* fixes itself on the roots of broom or furze, and *O. minor* on the roots of-clover. Their seeds are borne in myriads, but will not grow unless brought into contact with the roots of the respective

plants on which they feed, but remain in the ground in such case for a very long time without damage, and if by any chance they reach the root of a furze-bush they strike into it and vegetate speedily, becoming a foot high in the space of a month.

Before I conclude this paper, and I fear I am now trespassing on your valuable space, allow me to notice one established favourite, a British plant, which is grown in every garden, and well known by all—I allude to the Wallflower, *Cheiranthus cheiri*, which may be made to bloom almost throughout the year, and loves to cling on the tops of old walls; it has been truly said

“ Its blossoms rise where turrets fall,”

and it has been considered the emblem of love in adversity, never appearing on the noble pile whilst in its pride and grandeur, but so soon as it crumbles to decay, and the walls totter, then this fragrant flower glads the solitary place, and with its cheerful blossoms robs the scene of half its gloom.

“ The Wallflower, the Wallflower,
How beautiful it blooms !
It gleams above the ruined tower,
Like sunlight over tombs,
And sheds a halo of repose
Around the wrecks of time.”

ON THE CULTURE OF THE COCKSCOMB.

BY A SUCCESSFUL CULTIVATOR.

IN the spring provide a quantity of turf from a pasture field, pared off about two inches thick, where the soil is a strong rich loam; form this into a pile three feet high, laying the grass side downwards, covering each layer of turf, one inch thick, with equal quantities of decayed hotbed manure, fresh droppings of horses, and swine's dung, clear from litter, and well incorporated. In autumn the pile is taken down, and the turf cut in pieces of two inches square, adding to three barrows of this turf one barrow of oak-leaf or vegetable mould, and one barrow of sharp sandy bog-earth, which are well mixed together, formed into a shallow ridge, and frequently turned. About the beginning of March, a hotbed should be got in readiness by being well worked and fermented. Then sow the seed very thin in forty-eight-sized pots, filled with a compost consisting of one-third rich loam, one-third leaf-mould, and one-sixth sharp sandy bog, broken fine; plunge the pots in the bed up to the rims, placing under each pot a piece of thin slate, to prevent any rancid steam from entering the bottom of the pots. As soon as the plants appear, they should have a little water given to them, raising the pots half-way out of the dung, and the next day entirely to the top, giving air, to keep the temperature of the frame to about 70°; the

following day, remove into the pine stove for two or three days, to harden them previous to potting, placing them near the glass in the daytime, and lowering them down at night. Pot these plants in small-sized sixty pots, using the same sort of compost they were sown in. The bed should be well forked up, one foot deep, every four or five days, and watered with water of the same temperature as the heat in the frame, in order to keep the dung in a strong moist heat, the pots being constantly kept plunged up to the rims, until the plants attain their full growth. They require but little water, which is always given over the heads with a fine rose watering-pot. In the middle of the day, when the sun is out, close the lights for about a quarter of an hour, and thinly shade the plants; observing at all times to admit double the quantity of air for about a quarter of an hour previous to watering. The heads of the plants should be kept near the glass, and the temperature of the frame to 75°.

As soon as the plants have rooted sufficiently, and before the roots get matted together, put into full-sized sixty pots, using the same sort of compost as before; they are then allowed to remain in these pots until they have formed their heads, when the strongest plants and best-shaped combs are selected, and potted in forty-eight-sized pots, using for the *first time* the prepared compost of turf, etc. After the comb is formed, never allow the roots of the plants to get entwined, but when they are sufficiently rooted remove them into thirty-twos, and lastly into twenty-fours, where they complete their growth, and will retain their heads perfect for several months, by receiving a diminished quantity of water, and being removed into the greenhouse or conservatory.

ON THE TREATMENT OF CAPE HEATHS.

BY AMATOR FLOREUM.

It has been said that this interesting tribe of plants is "perpetually green, perpetually in flower—of all colours, of all sizes, and of many and varied forms;" and I am of opinion, Mr. Editor, that few will be found to controvert the assertion, who have seen a good collection of this pretty genus. Perhaps a few detailed observations on a successful method of culture may prove useful, and may not be out of place, although much has already been written on the subject.

Heaths, or Ericas, may be readily propagated by cuttings, provided suitable care is taken to prevent their damping off after being put in. My opinion is that Ericas may be propagated at any season if the wood be rather firm, though on this head opinions are divided, some preferring the spring, others summer. To prick them off, pans should be provided of a proper size, say from six to eight inches deep; fill them with broken potsherds to within about two

inches of the top, over which spread a thin layer of moss, chopped small, and next a thin layer of sandy peat, covered with about half an inch to an inch in depth of silver sand. It is necessary to observe that the layer of moss should be thin, as it often happens, where the contrary is the case, that the tender rootlets are broken and otherwise injured in removing the young plants from the pans; and this is a tribe of plants which will not bear injury to their young and tender fibres.

in a cool part of the stove, and shaded from the direct sun. If placed in the stove, the glasses ought to be wiped and dried at least once a day, as the vapour is found to condense around the sides. When the young plants show signs of growth, give a little air for a short time in the morning, being mindful to cover and shade before the sun comes direct and strong upon them. In spring, as soon as the cuttings are rooted and ready for potting off, place each singly in the smallest sized pots; in autumn, six may be placed around the side of a 48-sized pot, drained well, and filled to near the surface with heath or peat soil, holding a large proportion of silver sand, mixing it up with small pieces of potsherds or charcoal, which act as a preventive to their suffering from the two extremes, drought and an excess of moisture; each of which it is very necessary to guard well against. When they are potted, put them in a frame under handlights, being particular to shade them for a few days, and gradually exposing them to air and light. As soon as they are found to require it, they should be shifted into larger sizes, adding a very small quantity of sandy loam to the compost named above. At the third shifting, each plant should be raised nearly an inch in the centre of the pot, so that the base of the stem at the crown of the roots be nearly on a level with the rim of the pot.

As to potting, it does not appear to be very material at what time it is performed. *Ericas* may be shifted with success from March to September, should they require it, and this ought to be the only criterion to fix the time, as nothing injures this tribe more than moving them into large pots, when the state of the roots shows they do not require it. They, like the majority of Cape plants, delight

in a cool soil, somewhat moist, but not retentive of water. I believe it will be found that the best time for shifting *Ericas* is just before they show signs of blooming; there being at that time less risk of breaking or injuring the fibres, than when they are beginning to grow. Should any of the stock appear unhealthy, carefully reduce the ball of soil, and repot them in a size less, using a very sandy soil. They should never be over-potted at once, but the size gradually increased.

Draining is of first importance; without constant attention to this particular, all other care is thrown away. From one to three inches of broken potsherds should be placed at the bottom, being guided by the size of the pots, and a layer of moss next, so as to prevent the fine particles of the soil insinuating amongst and choking up the draining materials. In shifting large specimens, I generally place a small pot, surrounded by crocks, at the bottom, directly over the hole, which is a very effectual plan of keeping open the drainage; it also prevents worms and slugs from obtaining entrance. It is of importance to attend to the elevation of the top of the ball above the rim of the pot, which preserves the collar or portion of the stem in contact with the soil from the injurious influence of wet, and here it is that this tribe is most liable to suffer. When neatly done, the plants look the better for it. It is well to be careful, in potting, to avoid breaking the ball, and injuring any of the tender fibres or rootlets; a gentle shake will loosen the fibres from the old ball. If the plants do not require shifting into a larger size, it is well, and conducive to their health, to remove some of the old soil, adding fresh, and replacing them in a new, clean pot. I vary the soil somewhat, according to the constitution of some of the species: for such as *Hartnelli*, *Aitonia*, *Massonia*, *aristata*, and *elegans* I mix very sandy peat, with a small portion of light loam, and chopped moss, broken potsherds, etc.; for more robust kinds, equal parts of sandy peat and loam, with moss, etc., as before. I never sift the soil for Heaths, as I consider they do better without it.

Too much attention cannot be given to watering. I generally examine the plants every morning, and water only those which I find dry, afterwards I syringe the whole freely, and, should the weather be hot, it is repeated in the evening. It is well occasionally to examine the pots, in order to see that the drainage is open; should the water appear to stand on the surface, I perforate the ball in several places with a stout wire, which allows the water to enter the earth more freely. I do not know any class of plants so susceptible of injury from moisture or drought, it is therefore very necessary to keep the medium between these extremes. In summer, it is a good plan to fill up the spaces between the pots with moss; this prevents the plants drying in the pots, and saves considerable labour in watering; but it should not be allowed to remain later than the middle of September. In moist, dull weather I water as seldom as possible, even to those which are in flower.

In the middle of May I set out of doors all the robust, strong-growing kinds, which at the same time affords more space for those of more delicate habit. Those which I set out are placed on a good layer of cinders or gravel, and screened from the mid-day sun. The spaces between the pots are filled, like those in the house, with moss. Such as cannot command a house specially set apart for Heaths, should not thereby be discouraged from cultivating this beautiful and most interesting genus. A very good substitute for a Heath-house may be made with a deep frame or pit, and should be contrived as follows:—Allow three feet six inches for the back, giving a good inclination for the glass; the width and length depending on the number of plants intended to be grown: the floor should be well drained, so as to keep quite dry. At the beginning of May the frame should be elevated a few inches from the ground, to admit a free circulation of air among the plants, and each should be placed on an inverted pot, to bring them near the glass. Attend to frequent syringing, and keep the plants cool, by carefully shading them during the hottest part of the day, and they will thrive well. A coarse, thin canvas will answer as well as anything I know to shade with, as it admits a subdued light, and prevents the sun's rays having an injurious effect. Draw off the lights completely in sultry or very hot weather. About November lower the frame again, and neatly bank up the sides with dry turf; a covering of mats, with the addition of dry fern or straw in wintry, frosty weather, will serve as a sufficient protection.

It is a frequent error to suppose that this tribe is impatient of pruning, hence we often meet with tall and unsightly plants. I can assure your readers that this is not the case, as there are very few plants which will bear being shortened back better, or with greater impunity, if carefully done—this is more especially the case with the free-growing varieties. After being pruned they should be placed in an airy situation. Sometimes our Heaths are infested with the green fly, but by a timely application of tobacco-smoke this pest is kept down. Mildew is a more dangerous enemy; on its first appearance, remove the plant, and give it a sprinkle with flowers of sulphur, or syringe with lime-water, which is perhaps a better plan.

By pursuing this treatment Heaths may be grown in great perfection, and a more elegant and interesting genus I do not know.

A FEW REMARKS ON THE CULTURE OF MIGNONETTE IN BOXES.

BY M. L.

MIGNONETTE is of the most simple and easy culture, but we seldom see it so managed as to look long neat and elegant; while although it is but a simple flower, it is really kept elegant for a length of time when treated in the following manner.

First with respect to box or window culture: I get some good compost, such as is usually prepared for vines; or a mixture of good cucumber and melon mould, or rich garden soil, is quite sufficient for the purpose. Instead of sowing the seed, I transplant in the boxes, either from the clumps or border, or from plants previously raised for that purpose, forming only one row along the middle of the box, at four to six inches apart from plant to plant, and pinching off the tops of each as soon as I plant them. If I plant large specimens, which I frequently do very successfully, I pinch all the shoots back to the first joint of each; and as they push fresh shoots, I continue to pinch them all back to the first joint of each shoot, till the box becomes nearly full, or till I think I shall soon require them to be in bloom, when I stop them no longer, and allow them to shoot out for flowering. Still I occasionally pinch them in so as to keep them in a judicious trim; and frequently thin out many branches, that they may not become too crowded, so as to weaken the plants or endanger the stems by damping off. By the above treatment I have had *Mignonette*, that has been planted early in the spring, kept in fine and vigorous bloom, at the outside of windows, till the end of January.

This season I sowed a good deal of this little favourite round the beds and borders, but owing to our cold, wet, clay soil, and the unfavourable season, in many parts it either never came up, or so weak that it dwindled off afterwards; but on some parts of the higher and drier grounds it came up tolerably well, which has given me plenty to transplant at this more favourable season into the less congenial soils, where it had gone off; and by my box treatment it is now promising to do well. Until it gets proper vigour, I keep picking out the blossom-buds as soon as I can detect them, or pinch back the shoots, to make them strong bushy plants. Those I leave after thinning I treat just in the same manner as the transplanted ones; so that one single plant only left becomes a much finer specimen than by leaving more. The usual manner of leaving it to ramble where it chooses, and all the plants which spring up from seed, is always disagreeable to the sight; and it soon exhausts itself by rambling seeds and blossom. Some plants are trained to a single stem, and tied to a stake; and these may be either trained to form into a bushy head at any convenient height, or spurred into the first joint, so as to have them in blossom the whole height of the stem, as far as it may be desired, in which state it is really a very pretty object.

ON THE MANAGEMENT OF PLANTS IN WINDOWS AND BALCONIES.

BY MR. JAMES THOMSON.

I AM a great admirer of flowers, and love to see them grown in every situation which is compatible with their cultivation. There are, I am persuaded, many who would cultivate them, and indeed be glad to

avail themselves of such as will grow in windows or on a balcony, did they meet with better success than it is usual to find attends the endeavours of many window gardeners—those who are not in possession of even a few feet of garden ground. It is in the hope that the following remarks may be acceptable that I submit them to your readers' notice.

No plants are looked upon with more interest, or attended to with more care, than those which are cultivated in the rooms of dwelling-houses; and yet from imagining that there is something very difficult in the management of these plants, or from not properly understanding what that should be, our window gardeners often fail in accomplishing what their labours and anxiety most richly merit. Now there is in reality no great secret in the treatment of window plants, and we may learn this if we will only open our eyes to what is continually going on in the great garden of nature by which we are surrounded. Wherever plants are placed, whether in the open air, where they are watered by the dew and the gentle rain, in the conservatory or greenhouse, where they are subjected to more artificial treatment, or in the house window, where the treatment must necessarily be still more artificial, there are certain laws which regulate their growth, and certain conditions requisite in order to keep them in a high state of health and beauty. Thus, the greater part of greenhouse plants which are sufficiently hardy to endure the open air in the summer months, if planted in a sheltered border, attain in a short time twice their original size. This is no doubt owing in a great measure to the roots not being confined as they are in pots, but multiplying and ramifying in all directions in search of food, sending that food upwards into the stem, branches, and leaves, and so causing these parts to increase in size with great rapidity. This, then, is nature's method of cultivation, and the nearer we follow her example when we can, the more likely we are to succeed. Similar remarks apply to light and also to water, because both of these have much to do in the difference of the growth of the plants just mentioned.

Many plants indigenous to warmer countries will not live out of doors during winter in England, therefore we are obliged to have recourse to some artificial mode of protection, and of course that is the best mode in which we approach most nearly to natural circumstances. Hence the use of the conservatory where many of the plants are planted in the border, and where all receive as much light as an artificial structure can admit. We can never therefore expect to grow plants so well in rooms as in buildings of this description, particularly in the winter months, when the windows cannot be opened, or the plants with safety placed for any length of time on the outside. It must therefore be a general principle in their cultivation to give them all the light possible, by placing them close to the window, and in the summer months in a sheltered situation out of doors. Although this situation is the best for these plants in summer, yet in some places this may not be convenient, and in others it may be desirable to have them on

the outside of the window, or on a balcony erected there for that purpose, where they will grow and flower under the eye, and, if sweet-scented, perfume the air of the room when the window is opened on a fine summer evening. In this case it is necessary to have some means of protection from the burning heat of the mid-day sun, which is very much increased by the reflection of the rays from the wall of the house. It should never be forgotten that the management all along has been very artificial, the leaves and shoots have been formed in a dark room, the roots are confined to pots and cannot find nourishment so quickly as it is drawn from the leaves, and therefore, if we have deprived the plant by artificial means of providing a certain quantity of food, we must also take care to counteract the other force—the sun upon the leaves—which if not done, more moisture will be drawn off than the roots can supply, and the result of this treatment will be, as is very often seen, plants with bare stems and withered leaves. Having mentioned what should be done, every one will readily invent something to answer the purpose, an awning, for example, or merely to move the plants to the inside of the window. Of course these remarks apply only to the summer season, when the sun's rays are very hot in the middle of the day, and to windows with a south aspect. High winds are very injurious to window plants and should be guarded against, and for this reason windows on the ground or first floor are best adapted for their cultivation.

I will now say a few words with respect to water. As I remarked before, plants planted by the hand of nature send their roots in all directions in search of food and moisture. They differ materially in this respect from those grown in greenhouses or rooms; confined to the pots in which they grow, and supplied with water by artificial means. The latter are more liable to suffer than the former from dryness in summer, having fewer mouths to absorb the moisture which is rapidly evaporating from the leaves; and they are also more likely to be injured by excess of wet in winter, owing to the drainage of the pots getting choked. It is impossible to say how often, and how much, water should be given, because this depends upon the kind of plant, the state of health in which it is, and the season of the year. As a general rule, however, they should never be watered until the soil at the surface of the pot will readily crumble between the finger and thumb when taken up, and when in this state, as much water should be given as the soil will receive; in other words, never water until the plants are dry, and when you do water give plenty of it. Rain-water is by far the best kind, and should always be used in preference to that obtained from springs. In winter very little water is required, and it should always be cautiously given, because the air is more moist, and the light is not so intense, therefore there is less demand made upon the roots by the leaves.

When the plants are in the inside of the room, it is well to have some contrivance to prevent the water from running through the soil and wetting the floor, and this is most simply done by placing a flat

pan under the flower-pot, which collects any superfluous water, and this water is afterwards absorbed by the roots when the soil gets dry. The method very often practised, of always keeping these pans full of water in preference to watering from the top, is not to be recommended, except for very robust plants, which are not easily injured, and not even for these in the winter months. Watering over the leaves is of the utmost importance to the health of window plants, exposed as they are to so many small particles of dust, which forms a thin crust over them, and prevents the natural action of their pores. This operation can be performed very seldom in winter, but should be done every day in summer by the lady who is anxious to preserve her plants in health and beauty. The proper time for shifting and potting plants of this description is either in spring or early in autumn.

ON THE CULTIVATION OF STEPHANOTIS FLORIBUNDUS.

BY A THREE YEARS' SUBSCRIBER.

HAVING been a very successful grower of this charming plant, perhaps a few hints on its proper management may not be unacceptable to the readers of your highly useful periodical.

I may commence by stating that I usually grow the *Stephanotis* in pots, in preference to planting it out in the stove border; and I am persuaded there is no stove plant more easy of culture when its requirements are known. I find the following compost to answer well:—Two parts turfy loam and two parts sandy peat, with one part well-rotted dung, or well-decayed hotbed manure, and one part of well-decayed leaf-mould. When plants are potted add pieces of broken charcoal as big as nuts, and well mix up the whole. This compost will be found very open, and will allow the roots to run freely into it; if one of a closer nature be used, we shall find that, although the plants may grow tolerably well for a time, yet they will be very shy in flowering, and in consequence of such soil retaining too much moisture and not draining freely, the plants will be apt to rot and damp off; and again, if kept too dry, the compost is too hard, and as the roots are unable to penetrate it, the plants will become unhealthy, and finally perish. A soil which is light, open, and rich is the one most suitable for this plant.

In propagating by cuttings I choose such as are short, trim away the lower leaves, and insert them in sand round the side of a pot, cover with a hand-glass, and place in a warm corner of the stove or bark bed. When the roots are formed, which generally takes place in a very short time, I pot them off in rather large-sized pots of the above-named compost, replace the hand-glass, and shade them from the direct sun for a week or ten days, when the young plants may be fully exposed. The soil, being open in its nature, may be well pressed

down, allowing plenty of draining materials, and a liberal supply of water afforded without fear of injury to the roots. Plants thrive remarkably in a bark bed, the pots being plunged up to the rim; but if no such convenience be at hand, they will prosper well in any warm corner of the stove, where the roots may be kept dry and warm. The heat of the house should not exceed 50° in winter, unless in sunny weather, when a few degrees more are allowable. As winter declines, the heat may be kept at 60° or 65°, when the plants will put forth their short thick shoots and healthy leaves; in a month after the growth has fairly commenced, and flowers begin to show themselves, let the heat rise to 70°, at which it may be permanently kept, and the plants will make fine shoots, with a great show of flower-buds, which will soon bloom to perfection. As soon as the plants have done flowering, I allow the heat to go down, and the plants to rest through their dormant season. I am assured that if my plan of treatment be pursued by any who have experienced a difficulty in flowering this charming climber, they will find it attended with full success; and I have, I regret to say, known several cases where, through not properly treating it, disappointment has been the result. I have had as many as sixty-five heads of flowers on one plant at a time, and nothing can look more agreeable, each head of bloom containing seven or eight large-sized flowers, of pure snow-white, contrasting well with the dark green of its healthy leaves. *Stephanotus floribundus* is a native of the island of Madagascar, and was introduced to our nurseries about sixteen years ago; it is decidedly the best thing of its class that has been yet introduced, and I shall be happy if these few remarks may be of use to the readers of the *Cabinet*.

ON THE TREE CARNATION.

BY MR. WILLIAM BREE.

ALL lovers of a handsome fragrant flower must be enamoured of this beautiful plant, which has only of late years been introduced to our notice. I know of few plants more showy, or which are of easier cultivation. Possessing a small stock, we may enjoy their cheering blossoms as well at Christmas as in the heats of summer. Without respect to season, these plants have a habit of blooming upon the young ripened stems, and will bear stopping as often as is rendered necessary to retard their blooming period, without injury to their ultimate show of flowers. A little practical experience will be of advantage in instructing the grower to omit stopping, that they may bloom at the period desired. Having procured a selection of plants, they may be readily propagated by cuttings, which should be dressed in the usual manner, taking them off at a joint where the substance of the wood is firm, yet not hardened. Have ready some pots provided with a good drainage of crocks, and using a light

sandy soil, put in the cuttings and cover them with bell-glasses. Plunge the pots up to the rims in a mild bottom heat, about 60° is the best temperature; here they will speedily root well, if attention be paid to watering. The inside of the glasses should be wiped once a day, to preserve them from the injurious effects of damp, which would otherwise prove very fatal to them. As the young plants become rooted, pot them off into large forty-eight-sized pots, when they should be kept in a frame until quite established, at a temperature of about 50° to 60° . As they make a little growth it is well to pinch out the tops of the leading shoots, to induce them to become bushy and throw out laterals. When the roots fill the pots, shift them into thirty-two-sized ones, if it is intended to have them bloom in autumn; for winter and spring flowering, pots a size larger may be employed. Throughout the summer retain them in a cool frame, giving due attention to stopping, watering, and tying up. As to stopping them, we may remark that if they are desired to bloom about Christmas, they ought not to be stopped later than the middle of August, and in all cases it is desirable to defer it until the present growth be properly matured. A free exposure to air and light is advantageous during the growing period; after the buds are formed, however, they may be kept more close, and the temperature raised, depending on the time at which they are desired to bloom, in which case a little practical experience is of more value than pages of directions. When cold and damp weather comes on, remove the plants to a greenhouse or pit, in order to give them an increase of heat, which, however, will not be necessary unless they have had a late stopping, for they will flower well at a temperature between 40° and 50° . It is advisable to have the growth matured in autumn, and to keep the plants in an airy cool part of the house until their flowering-time approaches, rather than to rely upon the use of artificial temperature, which ought properly to be reserved to those plants destined to bloom in spring. There is no plant more acceptable in the drawing-room or conservatory, at a time when few other beautiful blossoms are to be had. For compost, a mixture of well-decomposed manure and rich loam, with a little sharp river sand, will be found to grow them to perfection. The old plants after flowering may be cut back, kept in a cool pit, and grown for flowering at another season.

DESIGN FOR A SMALL ESTATE COMPRISING ABOUT SIXTEEN ACRES.

(Reference to Plan.)

BY T. RUTGER, ESQ.

THE plan contains about sixteen acres, and is divided into pasture and pleasure ground by a light iron or invisible fence, taking in the

lawn as pasture also, on the south-west side of the water. The walk round the extremity may also be protected by a fence of the same description. At the south-west, nearly opposite the house, is a round summer-house, and at the south of the kitchen garden is an alcove; there are also two ornamental erections at the extremity of the grounds, one to the south-west, and the other to the south-east. The house has a wing for the offices, from whence convenient walks lead to the laundry, poultry-court, stable-yards, garden, etc. The rivulet, which enters at the south-east, has a branch carried on to the homestead; the other branch, on entering the lawn, is widened, and diminishing on entering the kitchen garden; it is supposed to be conveyed thence under ground, and to supply tanks for the garden and forcing departments, and from there to the basin in the stable-yard, as well as to be made available for the brewhouse, where it is supposed to be led off by a drain. The pasture ground is laid down as somewhat undulating, and considerably elevated at the southern extremity.

Reference to the plan.—1, Lodge; 2, ditto, for gardener's house; 3, laundry and yard; 4, brewhouse and yard; 5, poultry-court; 6, stables and yard, with a basin; 7, dung-yard and compost-ground, with shed; 8, melon-ground with sheds; 9, forcing department, having two ranges of forcing-houses; 10, kitchen garden; 11, greenhouse or conservatory and flower garden, with a space behind for greenhouse plants to be set out in summer; 12, road to the homestead; 13, homestead and rick-yard, the erections to be appropriated as they may be wanted. The whole supposed to be hidden from view by trees or a shrubbery.

REMARKS ON THE RICHARDIA AFRICANA.

BY MR. PETER MACKENZIE, WEST PLEAN, STIRLING.

MANY short notices respecting the culture of the *Calla Æthiopica* of Linnæus, or *Richardia Africana* of modern botanists, have appeared from time to time since its introduction to this country; many who grow it as a window plant, or in the greenhouse, will be none the worse to hear some of the instructions regarding its culture repeated, that they may, if they choose, have better plants with larger flowers, and more of them than they generally have, for their favourite water plant will repay them with luxuriance and beauty for the little extra trouble bestowed upon it.

This plant, although introduced from the Cape of Good Hope more than a hundred years ago, has a variety of names, as if it came from another quarter of the globe. Mr. Lawson, in his treatise on "The Royal Water Lily of South America, and the Water Lilies of our own Land," says that the Nelumbium, or Rose of the Nile, must not be confounded by the non-botanical reader with a very different plant, often cultivated in our greenhouses under the names of Lily of

the Nile and Ethiopian Lily; the *Richardia Africana* has no structural affinity with any of the other plants known as Lilies and Water Lilies. It belongs to the natural order *Araceæ*, the Arum family, being associated with the Cuckoo-pint or Wake Robin of our woods (from the root of which plant Portland sago is prepared), the Tongue-swelling Dumb-cane, and the *Acorus calamus*, or Sweet Flag. The *Richardia* is easily cultivated, either in the greenhouse or in the dwelling-house window, a plentiful supply of water being all that is necessary to ensure its success. It has been observed that when the plant has too much water given, it will distil away in drops from the tapering points of the leaves perfectly limpid, and of an acrid taste. It requires to be grown in a rather large pot, so that its roots may have plenty of room, and, where it can be done, the plant will grow all the better if the pot is plunged into a tub or cistern of water.

The Ethiopian Lily grows well throughout the summer season in the open-air pond, and, where entirely covered with a depth of water sufficient to place its roots beyond the reach of frosts, is said to stand over the winter, and thrive well as a permanent out-of-door aquatic. Its arrow-shaped upright leaves, elevated above the water on long stalks, and the large pure white spathe which it produces, render the *Richardia* an object of great beauty, and point it out as a fitting companion on the lake, but more especially on the artificial pond, for the great White Water-Lily of our own land.

As a greenhouse plant, it flowers in the winter and spring months.

For some time I have been trying experiments with this plant, in the way of feeding it, in order to increase the size of the leaves and flowers. I find that guano is a good manure, either applied to the surface of the soil, and brought in contact with the roots of the plant by means of watering, or by applying water with guano dissolved in it. The flowers have been much larger than ever I have seen them before, the whole are in a healthy condition, and the flowering of the plant is continued much longer than when common water is applied to it. The following remarks by Mr. Mearns, in the *Gardeners' Chronicle*, may be useful to some of your readers. "It requires very nearly the same treatment as the *Iris Chinensis*, namely, shaking it frequently out of the exhausted soil, and divesting it of every appearance of suckers, trimming in the roots, and repotting it, but not to excess. It is best to replace them in the same pot, unless it be obvious that more room would increase their luxuriance. With rich compost, they will be strong and healthy by the regular flowering season, and will send up strong stems, blooming in a continued succession nearly throughout the winter. I find that, like all tuberous and bulbous-rooted plants, they do better when suffered to remain in the pot for a time in a dormant state, after they have done flowering, keeping them only slightly moist. They should afterwards be shaken out of the soil, the roots and suckers trimmed from the tubers, and treated as before. Although

winter is the flowering season, I have had them blooming in a continued succession through the summer months, in the stove. They soon get vigorous roots, and send up another, and often three or four flowering stems. If the tuber is strong they will flower well in the open ground in summer, and produce a fine effect, although their most natural season, like the Chinese Iris, is in the winter months, when their elegance and pleasing fragrance are most wanted."

GRAND FLORAL EXHIBITION, CRYSTAL PALACE.

On Saturday, May 24th, the first grand Floral Fête of the season took place at the Crystal Palace, and we believe it may be regarded as a very successful one. The morning of the day fixed for the exhibition turned out very unpromising, but as the day wore on the sun came out, and there was a large attendance of the lovers of flowers from all parts of the kingdom. The total number of visitors amounted to 17,237, of whom 2735 paid half a guinea for admission. The excellent arrangements and encouragement offered to exhibitors by the spirited directors of the Crystal Palace Company cannot indeed fail to command floral exhibitions of hitherto unlooked-for magnificence. Prizes were adjudged to the value of £650 for flowers and plants, and £138 for fruits, etc.

We noticed a great improvement over former shows in the arrangement of the plants, which, instead of being on tables and stands dispersed through a considerable extent of the building, were placed together along the central transept and nave, forming a grand and imposing whole. Above was stretched a light covering of canvas, which served as a screen to protect the objects collected together from the injurious effects of the direct rays of the sun. We will endeavour to convey to our readers an idea of the arrangement of the groups and tables as effected at this exhibition.

Entering the great transept from the Sydenham road, there stood before us, situated between the large statue of Peace on the left hand, and the Scutari obelisk on the right, an array of tables set in the form of a cross, the long arms of which were each twenty-two yards in length, and the shorter twelve. On these were well displayed a good collection of stove and greenhouse plants, Azaleas, etc.; turning to the left and passing down the eastern nave, were Orchids and some new plants, while the extremity in this direction consisted of a stage, twenty yards in length, of Tulips; on the other side we passed Cape Heaths, Rhododendrons, and Cacti; we then again came to the transept, and entering the western nave, we found in succession new Azaleas, Calceolarias, Fuchsias, miscellaneous plants, and a long stand of fruits, which was at the extremity in this direction; turning the end and coming again towards the transept, we beheld the Roses and Pelargoniums in fine display, both show flowers and fancies.

Of stove and greenhouse plants there were many fine specimens. Mr. James May, gardener to H. Collyer, Esq., of Dartford, obtained the first prize for a large group consisting of Azaleas, Epacrises, a fine specimen of *Pimelia spectabilis*, *Dipladenia crassinoda*, and *Stephanotis floribunda*, Cape Heaths, *Aphellexis macrantha purpurea*, Choroemas, and *Gompholobium polymorphum*, covered with flowers. Another collection worthy of particular notice was exhibited by Mr. Dodd, gardener to Sir John Cathcart, Bart. It included finely grown examples of *Erica Cavendishi*, *Gompholobium polymorphum*, *Pimelia spectabilis*, *Epacris miniata*, *Boronia serrulata*, *B. pinnata*, *Azalea Gledstanesii*, and other plants. Messrs. Veitch and Son contributed a collection which attracted great notice, being specimens of plants possessing fine foliage and noble habit, well arranged for effect. A fine *Dracæna* occupied the centre of the group, and on either side was the handsome Palm, *Chamærops humilis*. There were also good specimens of *Cycas revoluta*, *Aralia pulchra*, *Dammara obtusa*, several tree Ferns, with well-grown plants of the handsome silver-striped *Pandanus argenteus variegatus*, and a few Orchids. Another group exhibited by the same well-known firm consisted of Orchids, and comprised some extraordinary specimens, amongst which we noticed *Cattleya Mossiæ*, covered with blossoms, *C. intermedia*, *Calanthe veratrifolia* (a large and well-grown example), two beautiful plants of *Phalenopsis amabilis*, *Lælia cinnabarina*, loaded with its handsome orange-scarlet flowers, *Dendrobium Farmeri*, some Cypripediums, and other plants all equally well grown. In addition to the above, Messrs. Veitch showed a collection of variegated Orchids, including several species of *Anectochilus* and *Physurus*. Mr. Gedney, gardener to Mrs. Ellis, Hoddesdon, exhibited also a collection of twenty well-grown Orchids, the most conspicuous and beautiful being *Cattleya Mossiæ*, *Dendrobium densiflorum*, the snowy-white *Calanthe*, *Phaius Wallichii*, and *Lycaste Skinneri*, all in profuse bloom. Another fine group was from Mr. Mylam, gardener to George Reed, Esq., Burnham. In this the most conspicuous objects were *Vanda teres* and the sweet-scented *V. suavis*, *Dendrobium densiflorum*, *Lælia purpurata* (a very handsome species), *Epidendrum alatum*, *Barkeria spectabilis*, and *Cattleya Mossiæ*, a fine specimen above three feet in height, loaded with bloom. Mr. Green, gardener to Sir E. Antrobus, Bart.; Mr. Wooley, gardener to H. B. Ker, Esq., Cheshunt; Mr. Carson, gardener to W. Farmer, Esq., Nonsuch Park, Surrey; and Mr. Keele, gardener to Dr. Butler, Woolwich, were other exhibitors of well-grown specimens of this fascinating tribe of plants.

The display of Azaleas was very striking, and was a main feature of the exhibition. Mr. Green, gardener to Sir E. Antrobus, Bart., of Cheam, exhibited twelve good old sorts, in full bloom, leaving scarcely a leaf visible; amongst them were *Gledstanesii*, *Iveryana* (white striped with pink), *rosea punctata*, *coronata*, *variegata*, *triumphans*, and *Perryana*. Mr. Gaines, nurseryman, of Battersea,

showed twelve well-grown specimens also. Of amateur exhibitors in this class we must not omit to notice Mr. Carson, gardener to W. Farmer, Esq.; in his collection were splendid plants of *variegata*, *laterita*, and *Broughtoni*, the old Chinese yellow. Messrs. Ivery, nurserymen, Dorking, exhibited in the class of new kinds, *crispiflora*, a very pretty variety, the border crimped; Beauty of Europe, white, spotted with salmon-blush; Lord Raglan, a large flower; General Williams, fine rosy salmon; Admiration, pink stripes on a clear white ground; and Trotteriana, a vivid rosy crimson. Mr. Roser, gardener to J. Bradbury, Esq., of Streatham, showed *delicatissima*, white, with carmine stripes; and Marie, a fine orange-red variety.

Of Roses there was a fine show. Amongst the trade-growers, Messrs. Lane and Son, of Berkhamstead, took the lead, and obtained the first prize; their collection was very fine, and in beautiful bloom. We noticed particularly Baronne Prevost, Duchess of Sutherland, Souvenir d'un Ami, Lamarque, and Lion des Combats. Messrs. Paul, of Cheshunt, had some well-grown specimens, including Vicomtesse Decazes, beautiful yellow; Géant des Batailles, Paul Récaut, and some others. Mr. Francis, nurseryman, Hertford, also showed twelve, amongst which were Elise Sauvage, Lamarque, and Coupe d'Hébé. Mr. Bushy, gardener to J. Crawley, Esq., Stockwood Park, Luton, amongst amateurs, had the best plants, including General Jacqueminot (a fine dark flower), Chênédolé, Madeline, William Jesse, and Paul Perras. Mr. Wilkinson, nurseryman, of Ealing, exhibited a collection of cut flowers of choice kinds. Amongst new Roses we cannot omit to mention Bacchus, a new hybrid perpetual variety, from Messrs. Paul, which promises to be an acquisition; it is of good form, and a fine deep crimson.

Amongst new plants we noticed *Embothrium coccineum*, a half-hardy shrub, having pretty scarlet flowers; *Correa cardinalis*, flowers bright scarlet; *Ceanothus Oregonus*, a hardy bushy species, with white flowers, from Messrs. Veitch and Son. Messrs. Standish and Noble forwarded an Azalea, a crossed variety, with singular flowers, having a double corolla, one within another.. From Mr. Epps, of Maidstone, there was *Begonia splendida*, a new species from Java, with strikingly handsome red leaves; also a specimen of *Hedaroma tulipiferum*, a greenhouse shrub, with pretty bell-shaped flowers, brown and white. Mr. Fleming, gardener to the Duke of Sutherland, exhibited some lovely bunches of *Cantua dependens*, bloomed in the conservatory.

The show of Pelargoniums was very fine. Mr. Turner, of Slough, obtained the first prize for show flowers, and also for fancy varieties; his specimens were remarkably well grown. Among them we noticed Una, Wonderful, Governor-General, Lucy, Sanspareil, Majestic, Basilisk, Arethusa, Petruchio, Carlos, National, and Magnificent. Messrs. Dobson, Isleworth, obtained the second prize for Arethusa, Boquet, Harriet, Rosamond, Delicatum, Lucy, Gertrude, Conqueror, Ambassador, and some others. Messrs. N. Gaines, and

J. and J. Frazer, also had good collections. Of amateur exhibitors, Mr. Nye, gardener to E. Foster, Esq., Clewer, showed the best specimens. In fancy Pelargoniums, Mr. Turner contributed Madame Sontag, Empress of France, Celestial, Mary Howitt, Jenny Lind (a very fine specimen), Electra, Queen of Roses, Richard Cobden, Cloth of Silver, Conspicuum, Delicatum, and Lady Hume Campbell. Messrs. Fraser, of Lea Bridge, exhibited Gaiety, Floribundum, Celestial, Madame Sontag, Advancer, Delicatum, Princess Alice Maud, Formosissimum, Princess Galitzin, Jenny Lind, Miss Sheppard, and Argus. In the amateurs' class, Mr. Windsor, gardener to A. Blyth, Esq., of Hampstead, showed Duchesse d'Aumale, Electra, Magnificum, Fairy Queen, and Princess Alice, very fine specimens, well-bloomed. Mr. Bousie, gardener to the Right Hon. H. Labouchere, M.P., Stoke Park, brought excellent specimens of Perfection, Delicatum, Princess Galitzin, Formosissimum, Richard Cobden, and Triumphant.

Messrs. Lane exhibited a fine collection of Rhododendrons, comprising chiefly yellow varieties, amongst which were *Sabinianum*, *sulphureum*, *aureum*, *primulinum elegans*, and *decorum majus*. Messrs. Veitch had a pretty variety, to which a first prize was awarded, named *Caucasicum pictum*; and Mr. Gaines sent a very good collection.

Of Gloxinias there were three collections. Mr. Dall, of Pimlico, had two varieties, named *erecta stellata* and *Castelloni erecta*, which were very well worth notice.

Amongst a good display of Fuchsias we noted a collection of six, from Mr. Bousie, gardener to the Right Hon. H. Labouchere, M.P., which were pyramidal specimens of great height; one, *Macbeth*, was upwards of ten feet high, the lower shoots flowering down below the pot, and all covered with flowers from top to bottom. Mr. Rhodes, gardener to J. Philpott, Esq., Stamford Hill, also exhibited half a dozen well-grown plants.

Mr. Turner had a choice collection of Cinerarias, comprising Admiral Dundas, Viola, Orlando, Purple Standard, Emperor of the French, Etoile de Vaise, Sir C. Napier, Duchess of Wellington, Lady Paxton, Magnum Bonum, Brilliant (a fine light blue-edged kind), and *Optima*.

From Messrs. Dobson and Son were exhibited twelve extra good Pansies, in pots, namely, Omar Pacha Great Western, Aurora, Queen Victoria, Father Gavazzi, Marian, Mary Taylor, Nonpareil, Emperor, Satisfaction, Constance, and Topaz. There was also a collection of cut flowers exhibited.

A very interesting collection of Nepenthes, or Pitcher Plants, were brought by Messrs. Veitch, amongst which the following were very striking: *Phyllamphora* (a specimen completely loaded with delicate pitchers), *ampullacea*, *vittata*, *lanata*, and *levis*. A small collection of the taller-growing species of Cacti was shown by Mr. Green,

gardener to Sir E. Antrobus, of Cheam, and a like number from Mr. Grix, of the same place.

The exhibition of Tulips was very extensive, comprising five rows, each twenty yards long, which attracted very great attention.

With respect to the Crystal Palace plants, we were glad to find them in a very healthy and flourishing condition; many of those suspended in wire baskets were coming into full bloom, and looked remarkably well. In the basin, the *Nymphæas* and other aquatics were in perfection, and flourish as well as could be desired: we noted *Deoniensis*, rosy crimson; *cærulea*, light blue, with bright green foliage; and *dentata*, white, with yellow centre. The *Victoria Regia* is small, but very healthy. At each corner of the basin there is a fine specimen of the Norfolk Island Pine, and four very large *Dielytra spectabilis*. Some fine standard Rhododendrons in tubs were in full bloom, as were also some in beds. Oranges, Bays, and Pomegranates were doing well in boxes.

Out of doors, the beds of early Tulips were past their best bloom, but had been fine when in perfection. The bedding plants were nearly all put in, and the grounds well kept.

ROYAL BOTANIC SOCIETY'S EXHIBITION, REGENT'S PARK.

THE first exhibition of this season took place on the 28th May. The attendance of visitors was not so numerous as could be desired, which fact is, however, accounted for by the heavy showers which came on during the course of the afternoon. The show itself was a very good one; many of the plants were transferred to this exhibition from the Crystal Palace, as the two shows were fixed so nearly together. Of stove and greenhouse plants there was a good display, also of Roses, Azaleas, Heaths, and Peiargoniums. The orchids were generally fine specimens, but fewer in number than at the Crystal Palace. Amongst the new plants some were well worthy of notice. From the Bishop of Winchester was a very handsome orchid, a *Peristeria*. Mr. Linden, of Brussels, forwarded *Odontoglossum Phalenopsis*, lately received from New Granada; and Mr. Wheeler, of Uxbridge, an interesting *Epidendrum*. Messrs. Veitch and Son exhibited the new *Leptodactylon*, from California, *Tropæolum Shumannianum*, and *Eurybia alpina*, a hardy shrub from New Zealand, having white flowers, almost resembling an Aster. From Messrs. Standish and Noble, of Bagshot Nurseries, was a cut specimen of *Spiræa grandiflora*. There were also several Sikkim Rhododendrons, including a nice plant of *R. Dalhousiæ*, with nine flowers, large, of a greenish white, and *R. cinnabarinum*, with orange-yellow blossoms. Messrs. Henderson contributed a pretty collection of *Gastrolobiums*. Mr. Barnes, of

Bicton, sent some specimens of the catkins and cones of *Araucaria imbricata*, and Mr. West, of Lymington, cut specimens of *Bougainvillea spectabilis*, a plant not new, but by no means common in bloom. Mr. Francis, of Hertford, brought a fine collection of Roses on Manetti stocks, as well grown as any we have had the pleasure to see; every plant had bloomed, though only one year from the bud. A striking group of Amaryllises was very attractive, grown and exhibited by Mr. Hamp. The Society's grounds are well kept, and reflect credit on the able curator.

RULES FOR THE PRONUNCIATION OF BOTANICAL NAMES.

BY THE REV. W. GREEN.

THE sounds of the accented vowels used in the names of plants are distinguished by the mark placed over each; the short sound by an acute (´), as Máry, and the long by a grave accent (`), as Mártha. The following remarks will show when the vowel is to be sounded short or long.

Every accented penultimate vowel is pronounced long, when followed by a vowel or a single consonant, *Achillèa tomentòsa*; but it is shortened when followed by two consonants or a double one, as *Sórbus*, *Táxus*; except when the first consonant is a mute and the second a liquid, as *A'brus*.

VOWELS.

Every accented antepenultimate vowel, except *u*, is pronounced short, as *Helléborus*, *Húmulus*; but when succeeded by a single consonant, followed by *e* or *i* and another vowel, they are lengthened, as *Stellària*; except *i*, which is short, as *Tília*.

A unaccented, ending a word, is pronounced like the interjection *ah*, as *Stícta (ah)*.

E final, with or without a consonant preceding, always forms a distinct syllable, as *Silènè*, *A'loè*; also when the vowel is followed by a final consonant, as *Tri-chó-ma-nes*, not *Tri-cho-manes*.

I unaccented, if final, sounds as if written *eye*, as *Spica vénti (eye)*; but when it ends a syllable not final, it has the sound of *e*, as *Méspilus (Mespelus)*, *Smithii (Smithè-eye)*.

Y is subject to the same rules as *i*.

The diphthongs *æ* and *œ* conform to the rules for *e*; *ei* is generally pronounced like *eye*; the other diphthongs have the common English sounds.

CONSONANTS.

The following *directions regarding consonants* and their combinations, though unnecessary to those skilled in our own tongue, may not be without their use to some of our readers:—

O and *g* are hard before *a*, *o*, *u*, as *Córnus*, *Gálium*; soft before *e*, *i*, and *y*, as *Cetrària*, *Cítrus*.

T, *s*, and *c*, before *ia*, *ie*, *ii*, *io*, *iu*, and *eu*, preceded by the accent, change their sounds, *t* and *c*, into *sh*, as *Blètia*, *Vícia*; and *s* into *zh*, as *Blàsia*; but when the accent is on the first diphthongal vowel, the preceding consonant preserves its sound, as *aurantiàcum*.

Ch, before a vowel, are pronounced like *k*, as *Chelidónium* (*kel*), *Cólchicum* (*kolkekum*); but, in commemorative names, they follow their primitives, as *Richardsònia*, in which the *ch* is soft.

Cm, *cn*, *ct*, *gn*, *mn*, *tm*, *ps*, *pt*, and other uncombining consonants are pronounced with the first letter mute, as *Ptèris* (*teris*), *Onicus* (*nikus*), *Gmelina* (*melina*), *Gnídia* (*nidia*), etc.

Ph, followed by a mute, are not sounded; but, followed by a vowel or a liquid, sound like *f*, as *Phlèum* (*fleum*).

Sch sound like *sk*, as *Schœnus* (*skenus*); in *tm* and *zm* both letters are heard.

S, at the end of a word, has its pure hissing sound, as *Dàctylis*; except when preceded by *e*, *r*, or *n*, when it sounds like *z*, as *Èibes* (*ez*).

X, at the beginning of a word, sounds like *z*, as *Xánthium*; in any other situation it retains its own sound, as *Táxus*, *Támarix*.

NOTES ON NEW AND SELECT PLANTS.

117. *ARISTOLOCHIA THWAITESII*. Nat. Ord. *Aristolochiaceæ*.—A remarkable and very distinct species, introduced to the Royal Gardens at Kew, from the interior of Ceylon, whence seeds were sent by Mr. Thwaites. It bloomed for the first time early in March this year. The flowers are produced on stems of about three inches long, rising from the crown of the root, which bear a raceme of fragrant blossoms; only one opens at a time. The foot-stalks bearing the flowers are rather long, allowing the blossoms to rest on the ground. The perianth is a long tube, curiously formed, twice bent, like a swan's neck, and contracted in the middle; of a pale sea-green, slightly veined with yellow. The limb is yellowish, covered with glandular hairs; the throat is deep purple-crimson, and the mouth about an inch across. The leaves are lanceolate, four or five inches long, and borne alternately, on stems near a foot high.—(*Bot. Mag.*, 4918.)

118. *ODONTOGLOSSUM HASTILABIUM*; *var. FUSCATUM*. Nat. Ord. *Orchideæ*.—Messrs. Jackson and Son, of Kingston Nurseries, sent specimens to Kew, in March, 1856. It was discovered in Venezuela, by Mr. Birschell. A large epiphytical orchid, having branched panicles of flowers, each of which is about two and a half inches across; sepals and petals narrow, chocolate-brown and green, lip white, and red towards the base.—(*Bot. Mag.*, 4919.)

119. *PERNETTYA FURENS*. Nat. Ord. *Ericacæ*.—A hardy, low

shrub, growing in the neighbourhood of Concepcion, in the southern parts of Chili. Messrs. Standish and Noble raised it from seed sent them from that country. The flowers are white, produced in racemes from the axils of the upper leaves, and have greatly the appearance of those of *Andromeda floribunda*. The berries are brownish red; they possess dangerous properties, causing, it is said, delirium, whence the Indians have given to this plant a name signifying madness. As an ornamental plant it is a great acquisition to our gardens, bearing its close racemes of waxy flowers early in March, which contrast well with its bright evergreen foliage.—(*Bot. Mag.*, 4920.)

120. *MASDEVALLIA WAGENERIANA*. Nat. Ord. *Orchideæ*.—A very small orchid of no great attraction, growing from two to three inches high. The flowers are pale yellow, minutely spotted with red. Introduced from Central America, by Messrs. Rollison and Son, of Tooting.—(*Bot. Mag.* 4921.)

121. *CLAVIJA ORNATA*. Nat. Ord. *Myrsinæ*.—A stove plant, introduced from New Granada by Mr. Purdie, who sent seeds to the Royal Gardens at Kew, where plants have blossomed. It grows with a straight tree-like stem of ten or twelve feet, bearing a large tuft of leaves at the crown; they are from one and a half to two feet in length. The flowers are borne in racemes of about six inches long, and are deep orange colour, produced along the stem at the axils or scars of the old leaves, each flower being about two-thirds of an inch in diameter.—(*Bot. Mag.* 4922.)

122. *ODONTOGLOSSUM MEMBRACEUM*. Nat. Ord. *Orchideæ*.—From Oaxaca, in Mexico. The sepals and petals are creamy white, with transverse red spots or bands at their base. The lip is white, with a yellow claw. The flowers are about two inches across.—(*Bot. Mag.*, 4923.)

123. *ARALIA JAPONICA*. Nat. Ord. *Araliaceæ*.—A new species, introduced from China by Dr. Von Siebold. This very handsome and noble foliaged greenhouse plant is quite distinct from the new *Aralias* introduced by M. Linden, of Brussels. It has large, broad, palmated leaves, of thick leathery substance, very smooth and glossy, and of a bright green; habit fine and robust.

124. *ARDISIA CRISPA*. Nat. Ord. *Myrsinaceæ*.—This is a very beautiful and graceful-growing plant, with long, narrow, serrated leaves from four to five inches in length, of a bright glossy green. It is remarkably free flowering, and produces a great abundance of brilliant scarlet berries, even on small plants not more than one foot high, and which remain in a perfect state during the whole season. It is consequently one of the most useful plants we have for the decoration of the stove and conservatory during the winter and spring. This plant was introduced from China by Dr. Von Siebold.

125. *BEGONIA ZANTHINA ARGENTEA*. Nat. Ord. *Begoniaceæ*.—A very beautiful addition to the ornamental foliaged plants; the leaves are of a handsome form, the upper surface covered with blotches of white. The plant is of free growth and easy culture, and is as

ornamental as a small plant as when grown for a specimen. The flowers are similar to *B. Zanthina*, except being a little paler.

126. *RONDELETIA ANOMALA*.—Nat. Ord. *Cinchonaceæ*.—A hot-house shrub, raised from seed sent to the Horticultural Society by its indefatigable correspondent, G. U. Skinner, Esq. The plant has something the appearance of a *Bouvardia*; the flowers are of a rich vermilion-red, blooming in November; it must be regarded as one of the most brilliant species yet introduced.

127. *CUPRESSUS M'NABIANA*. Nat. Ord. *Coniferae*.—This beautiful Conifer was raised by Messrs. Veitch, from seeds gathered by Mr. W. Lobb, who found it on the Sierra Nevada of North California, where it forms a bush from eight to ten feet high. It presents a most striking appearance, with the green and glaucous scales associated with the deep rich brown of *Tamarix gallica* on their branches, and shows that in youth and vigour the species must be exceedingly handsome,

128. *DAHLIA, CRYSTAL PALACE SCARLET (Dwarf Bedding)*.—The qualities of this new bedding Dahlia are such that henceforth no garden with but half a dozen flower-beds will be complete without it. It fills up that void so long felt by many, namely, having a bed composed of large bold flowers, brilliant in colour, profuse bloomers, and of dwarf habit. This Dahlia possesses all the above requisites, it will therefore be easily imagined how the smaller and more diminutive flowers are lost beside it; added to which, it is one of the easiest plants to preserve throughout the winter, and can be propagated in spring by dividing the roots, in the same way as an ordinary herbaceous plant. Persons in the habit of visiting the Crystal Palace last season must have been struck with the noble effect the Dahlia there made when pegged down, but this variety, from its dwarfness of growth, will not require such care; and those who have had the pleasure of viewing the noted gardens of Tedworth House last summer will be able to appreciate the following particulars given of it by the able superintendent there, Mr. Sanders. "In colour, this beautiful dwarf Dahlia is equal to the most glowing scarlet Geranium, the flowers are of a medium size, very double, and full to the centre, of very compact habit, its growth averaging one foot and a half, and having fine dark leaves, which contrast admirably with the brilliant colour of the flower; it commences blooming early in July, throwing up great quantities of flowers together, and remains one perfect sheet of bloom until cut off by the autumn frosts. As a bedding plant, it will stand pre-eminent, and will be found unequalled for the decoration of the flower-garden during the autumnal months; another and not less excellent quality of this plant is, that neither rain nor sunshine have any effect on its brilliancy."

129. *RHODODENDRON, PRINCESS ROYAL*. Nat. Ord. *Ericaceæ*.—A very beautiful hybrid greenhouse Rhododendron, obtained by crossing the pale variety of *R. Javanicum* with *R. jasminiflorum*. It is a very handsome variety, in form intermediate between its parents.

The flowers are of a clear pure rose colour. It is an acquisition to this fine tribe.

130. *FUCHSIA*, MALAKOFF.—A variety raised by Messrs. Veitch, with a double corolla of a deep purple, and broad crimson petals. It is a large flower, very showy, and of excellent habit.

131. *FUCHSIA PENDULINA*.—A hybrid raised between a pendulous Peruvian species and *serratifolia*. It flowers very freely, small plants even producing fine corymbs of delicate glossy carmine flowers, three inches in length; the corolla deep pink. It possesses an ornamental foliage, and is altogether one of the most elegant of this tribe.

132. *CLEMATIS GLANDULOSA*. Nat. Ord. *Ranunculaceæ*.—Our stoves have received an acquisition in this fine stove climber, one of very free growth, and a profuse bloomer. The petals of the flower are of an intense purple, approaching to black, with anthers of pure white, such opposite colours forming a fine contrast. It is a native of Java, where it was discovered by Mr. Thomas Lobb on Mount Salak, who sent it to Messrs. Veitch.

133. *JUNIPERUS PYRIFORMIS*. Nat. Ord. *Conifera*.—Another of Mr. Lobb's introductions, when on his Californian tour. He discovered it growing on Mount Bernadino. It is a fine, distinct species, the fruit of which resembles small pears when young. The berries are deep purple, with a glaucous bloom on them. It grows as a low tree, from ten to twelve feet high, and is perfectly hardy in this country.

134. *DENDROBIUM LITUIFLORUM*. Nat. Ord. *Orchideæ*.—A fine orchid, of which the native country is unknown, received from R. Hanbury Esq. The flowers are from four to five inches across, spreading, of a pale lilac colour, with a deep, rich violet lip; it is a very handsome species. (*Gard. Chron.*)

135. *PHOLIDOTA SUAVEOLENS*. Nat. Ord. *Orchideæ*.—Much resembling a Lily of the Valley, but is an orchid, possessing like-formed leaves, flowers, colour, and charming scent. It has been flowered by the Bishop of Winchester, at Farnham Castle. Its origin is not known. (*Gard. Chron.*)

136. *RYBES SUBVESTITUM*. Nat. Ord. *Grossulaceæ*.—A very pretty flowering hardy shrub, sent from California by Mr. W. Lobb, and belonging to the same section as our *R. speciosum*. The flowers, however, are considerably larger than those of that species, and of a deep crimson colour. This will be a beautiful addition to our shrub borders, and deserves extensive cultivation.

NOTES FROM KEW.

SINCE our last visit to the Royal Gardens we are glad to notice that they are kept in very good order, and that many improvements and additions have been made; the bedding plants have been judiciously

arranged, and the collections are in a healthy and generally flourishing condition. For some time the want of a better and more extensive edifice to contain the rapidly increasing contents of the Museum has been pressing, and we are happy to announce that a fine building intended for this purpose is rapidly approaching completion, situate opposite the main entrance of the grand conservatory, at the further side of the lake. In the latter a fountain now plays, and the vases around are filled with plants in full bloom. In the great conservatory the plants and Palms are looking remarkably healthy. The *Victoria Regia* in the new house, built purposely to accommodate that and other aquatics, looks poorly and we have never seen it flourish here so well as in the smaller house, in which it was originally placed, where, being nearer the glass, it has always grown well. In the new house we noticed *Cyrtanthera Pohliana* in bloom, a plant very like *Justicia carnea* in habit and flower, the latter being of a more rosy red; the calyx and leaves very dark; the pretty *Asystasia Coromandeliana flore luteo*, a creeping plant, very free blooming, the flowers of a delicate sulphur-yellow, tube one inch long, corolla of five petals, one inch and a half in diameter.

In the house devoted to Rhododendrons the plants are likewise very healthy. We remarked *Rhododendron glaucum*, from Sikkim, in flower, a free bloomer, flowers salmony blush, with black anthers, in heads of four to six each, from one to one inch and a half in diameter; the plants about two feet high. *R. Keysii*, from Bootan; the habit singular, flowers being produced in a dense cluster around the stems, tubular in shape, about one inch and a half in length, by a quarter of an inch in diameter, of a thick, waxy substance, almost like some of the Heaths; colour pale orange-red, with a greenish mouth, in which appear small black anthers. The straggling habit, and form of the flowers are totally different from the generality of this genus.

In the greenhouse a plant of *Arctotis grandiflora* was in bloom, making a fine show; the flowers are large, near five inches in diameter, like a large Marigold, of a brilliant orange colour. It is a native of South Africa, and of spreading habit. *Primula mollis*, the flowers in whorls of six to eight in each, produced up the stems, which are about one foot in height, rosy purple, dying off paler, the eye of a deep crimson-purple. In a stove adjoining the Museum was a large well-grown specimen of *Medinella magnifica* in bloom, having from twenty-five to thirty heads of flowers. The collection of Gloxinias was very pretty in this house. Among the erect-growing kinds we remarked, as fine, *Prince of Prussia*, white, with a crimson throat, and a deep crimson blotch at the base of each segment; and a seedling raised in the gardens, unnamed, having a deep, intense, velvety, purple throat, very good. *Majestica*, not of erect habit, is a very fine flower also, the mouth being three inches across, of a fine crimson-purple. In the large greenhouse was *Calceolaria violacea*, covered with its pretty little spotted, lilac flowers; it is a bushy plant, with neat cut

foliage. The Azaleas, Acacias, Cinerarias, Chorozeas, and Rhododendrons in this house were in fine show. We also noticed a plant of *Cantua buxifolia*; it is of very straggling growth, five feet high, with about two dozen flowers open, the tube three inches long, scarlet-red, and the corolla rosy purple, one inch and a half across. A young plant of *Rhododendron Dalhousianum*, about two feet and a half in height, had four of its immense flowers out; they are of a thick waxy substance, creamy white, with greenish yellow streaks, each flower being about five inches long, and four across the mouth. Another young specimen, three feet and a half high, had two heads of blooms out. In the Heath-house there was a good display of this tribe, as well as of *Pimelias*, *Aphelaxis*, etc. The Ferns and Lycopods were growing freely, several of them being very fine specimens. Many varieties of *Begonia* were in flower in the stove. *Begonia odorata*, a very sweet-scented species, was represented by a specimen near two feet high, bearing large panicles of delicate white flowers, and large leaves of a clear bright green. Of *Begonia nitida*, a fine plant was in bloom; the flowers are large, about one inch and a half across, the petals very broad, pale flesh colour, and large yellow anthers. It is a very free-blooming kind, and the panicles of flowers are large.

A long span-roofed house has been lately put up, devoted to the Cactus tribe. Amongst the most remarkable of these plants in flower was *Epiphyllum nitens*, the blossoms about seven inches long, with a cup-shaped corolla, incurved, pale lemon-yellow, the sepals and bracts salmon-pink; it was introduced in 1852. *Phyllocactus crenatus*, fine large flowers, also of a delicate pale yellow, with deeper sepals and bracts outside; the diameter of the blossoms across the mouth is six inches. Many fine specimens of Aloes, Crassulas, and Amaryllis were also in bloom.

In the old Victoria house we found a small but healthy plant of it, numerous specimens of *Ixora*, and *Medinella magnifica*; a nice plant of the latter in a thirty-two-sized pot, with two very fine heads of flowers. *Streptocarpus biflorus*, an improvement on *S. Rexii*, with larger flowers, and two on each flower-stalk. *Didymocarpus Humboldtii*, from Ceylon, very pretty, delicate blossoms of a pale blue. Here also was growing in a glass vessel a specimen of that remarkable novelty *Ouvirandra fenestralis*, the lace-leaf plant, from Madagascar, of which we inserted a notice in the *Cabinet* for March (p. 75). One or two fine specimens of *Coleas Blumei* were flourishing. A considerable number of Orchids were in flower, in the erection appropriated to them; the most ornamental were the following, mostly good specimens: *Dendrobium fimbriatum oculatum*, *Paxtoni*, and *densiflorum*; *Cattleya Mossii*, *Phalenopsis amabilis*, *Lycaste cruenta*, *Brassia brachiata*, *Cypripedium barbatum*, *Sobralia macrantha* (a fine plant, with about thirty of its large, delicate purple blossoms out), *Oncidium flexuosum*, *Acanthophippium bicolor*, and a new species of *Galeandra*, from the Amazon, not yet named.

QUESTIONS, ANSWERS, AND REMARKS.

NEW SHOW CHRYSANTHEMUMS AND VERBENAS.—Would you or any of your correspondents be kind enough to supply me with a descriptive list of about a dozen of the best new varieties of Chrysanthemums, and of about twenty Verbenas for show? A reply in the next number of your useful work will be esteemed a favour.—C. E. KETTLE, *Stamford*. [We recommend the following, as the best of last season. *Chrysanthemums*.—Auguste Mie, carmine, with a yellow tip, incurved petals; a fine, full, and extra flower. *Aurore Boréale*, bright orange-cinnamon, edged with deep yellow, a distinct full flower, free and early. *Didon*, deep golden yellow, of intermediate size, half anemone-flowered, early. *Eclipse*, pale lemon, with a yellow centre, half anemone-formed, very free and early, extra fine. *Eole*, rosy blush outer petals, centre yellow, fine petal, good. *Hermine*, an incurved flower, blush, tipped with rose, free and early, extra fine. *Irène*, blush-white, full flower, fine. *La Radiense*, rose and white shaded, full, very early and free. *Le Prophète*, fine yellow, good petal and flower. *Madame Lebois*, creamy-buff, incurved flower, distinct and fine. *Madame Passy*, lavender, fine full flower, early and free. *Prince Jerome*, yellow, tipped with red, incurved flower, fine. *Verbenas*.—Bicolor, orange-scarlet, with a large yellow eye. *Carminata*, rosy purple, with a dark eye. *Cephale*, orange-crimson, centre white, fine form, and good trusser. *Duc d'Almeida*, splendid scarlet-red, good truss, and excellent form. *Empress of France*, pink, with a deep rose-coloured eye, extra large truss and flower, fine. *Florence Nightingale*, cerise, with a yellow centre. *Foudroyant*, salmon, a large crimson eye, fine habit and truss, good form. *General Bosquet*, violet-blue, with a large bright eye, good form, extra fine. *Gloire de France*, scarlet-cerise, fine form, and truss. *Gloire de Lyon*, mulberry-crimson, excellent form and habit, extra fine. *Julie Paquin*, blush-white, pink eye, good habit, and fine form. *Madame Adolph Weick*, purple striped, and shaded with fiery red, distinct and fine. *Madame Kien*, white, with a purple centre, good truss and habit. *Madame Olympe*, pure white, flowers fading off to rosy lilac, fine, dwarf, free-blooming, and compact habit; a very beautiful variety. *Monsieur Richalet*, lilac and white, striped and shaded, large, extra fine. *Mrs. Holford*, fine clear white, large truss and fine habit. *Pallas*, violet-rose, beautiful distinct shade of colour. *Rose Rigaut*, brilliant orange-scarlet, with a yellow centre, compact habit, very fine. *Triomphant*, violet-rose, shaded and mottled, a large crimson eye, covering near one-half the flower, good truss, extra fine. *Violacea*, blue-violet, with a white centre, good truss, extra fine.—*Editor*.]

FLORA OF SOUTH AFRICA.—Throughout the grassy mountains which the hunter must traverse in following the rheebok, his eye is often gladdened by romantic dells and sparkling rivulets, whose exhilarating freshness strongly and pleasingly contrasts with the barren rocky mountain-heights immediately contiguous. The green banks and little hollows along the margins of these streamlets are adorned with innumerable species of brilliant plants and flowering shrubs in wild profusion. Amongst these, to my eye, the most dazzling in their beauty were perhaps those lovely Heaths for which the Cape is so justly renowned. These exquisite plants, singly, or in groups, here adorn the wilderness with a freedom and luxuriance, which could the English gardener or amateur florist behold, he might well feel disheartened, so infinitely does nature in this favoured clime surpass in wild exuberance the nurslings of his artificial care. I remember being particularly struck with two pre-eminently brilliant varieties, the one being a rose-coloured, the other a blood-red bell; and though I deeply regret to say I am a poor botanist, even in the heat of the chase I paused, spell-bound, to contemplate with admiration their fascinating beauty. Others, with their downy stems and waxen flowers of every gaudy hue, green, lilac, and various shades of pink, red, and crimson—some of them with brown lips to the bell—flourished in the richer hollows of their native glen, or bloomed with equal loveliness along the arid cliffs and fissures of the overhanging rocks. Almost equalling the Heaths in beauty, and surpassing them in the additional attraction of their scented leaves, a whole host of Geraniums fill the balmy breeze with their delicious perfume. These are too well known to admit of any novelty in description, but I may mention, *en passant*, that they attain a far larger growth in their native soil than I have been in the habit of seeing in our greenhouses. Small groups of the lofty, fair, conscious-

looking Iris rear their graceful heads along the edges of the streams. Their fairy forms reflected in the waters, "they seem to stand like guardian Naiads of the strand." Another tribe of plants which particularly delighted me, from old associations, though not so striking as many of its neighbours for perfume and brilliancy, was composed of several varieties of the light, airy Fern, or bracken, which, whether gracefully overshadowing the mossy stones, eternally moistened by the bubbling spray of the stream, which they kissed as it danced along, or veiling the grey lichen-clad masses of rock in the hollows higher up, strongly reminded me of those so conspicuously adorning the wild glens in the mountains of my native land. Besides these, a thousand other gay flowers deck the hills and plains wherever the eye can fall. Endless varieties of the Ixia, the Hæmanthus, the Amaryllis, the Marigold, and a number of Aphelexis, are scattered round with a lavish hand; also the splendid Protea, whose sweets never fail to attract swarms of the insect tribes, on which several bright kinds of fly-catchers, their plumage glancing in the morning sun, are constantly preying. Farther down these water-courses, in the dense shady ravines, the jungle is ornamented with long tangled festoons of different creepers, among which the wild Jasmine ranks foremost, hanging in fragrant garlands amid the shaggy lichens, and bunches of bright orange-coloured Mistletoe, for which the forests of Africa, in the vicinity of her sea-coasts, are so remarkable. While touching on the floral beauties of the hills more immediately adjacent to the sea-coast, I may remark that here are the great nurseries for Heaths and Geraniums. As the traveller advances up the country these gradually disappear, and, together with the animal kingdom, the vegetable world assumes entirely new features; the colonial forest trees, bushes, and plants being succeeded by a vast and endless world of loveliness; unseen, unknown, untrodden, save by those varied multitudes of stupendous quadrupeds, whose forefathers have roamed its mighty solitudes for ages.—*Cumming's Hunter's Life in South Africa.*

EASY AND EFFECTUAL MODE OF FUMIGATING CONSERVATORIES.—Take some coarse brown paper, cut it into squares of about sixteen inches. Soak them in a strong solution of nitre; put them by to dry. Spread them out flat, and cover the surface thinly over with tobacco; then begin at one of the corners, and roll it up as the cook does a roll pudding; tie the middle with a thread, and also the two ends. Having shut up the house and made all ready, place two or three pieces of lath across an empty flower-pot, and upon these lay three or four of these paper rolls—light them at both ends, and leave them to do their work, which they will do most effectually. In half an hour you will find the green-fly, etc., destroyed. Give a slight syringing next day, and your plants will be found to be perfectly clean. If the conservatory is very large, it will be necessary to remove the plants affected to some smaller compartment. These rolls should not be made up till wanted, as the paper will contract moisture, and so will not burn freely. Dry the papers at the fire previously to making the rolls. The above may be nothing new, but I have found the greatest benefit from it.—G. LEAPINGWELL, *Cambridge (in Gard. Chron.)*

HYACINTHS.—The annexed varieties are either new or very select, and are said to be all of the finest character. Some are sent out for the first time this year by the Dutch growers, consequently at very high prices; one indeed, Paix de l'Europe, is offered at the enormous rate of £21 per root. Prince d'Orange, semi-double deep rose, large bouquet, flowering very regularly, forcing early, fine well-shaped bulb, fit for glasses or pots. Val Walré, double shaded dark rose, fine bouquet, well formed, early forcing, fine bulb, of a good size. Goethe, very double, of a good yellow, a large bouquet, and a fine form, forces early; a fine bulb for glasses or pots; this is, without doubt, a splendid variety. Carl, Kronprinz von Schweden, very double blue, with a violet tinge, the form of the bouquet resembling Laurens Koster, but more compact and regular, a fine show flower. Van Speijk, extra double, blue shaded with violet, unique colour, enormous bells, sometimes larger than that of any other Hyacinth known, bouquet of the most perfect form, larger than Grootvorst's; this Hyacinth may be considered as one of the best sorts raised the last fifty years, it forces regularly good and early. Goerres, not a show flower, but a single dark red variety of great merit, as it is very early, and produces several flower-spikes, which are most adapted for cut flowers; the bulb is of a good size and form. Maria Catharina, single dark red flower, and bouquet of superior form, regularly and early forcing, for glasses as well as for pots, and extra for bedding out, bulb

of perfect form, and as large as any other known; this sort will become one of the leading varieties. *Ninon de l'Enclos*, single deep rose, good flower and bouquet, bulb very large, and of the best form there can be for glasses; this is one of the most favourite sorts among amateurs who grow *Hyacinths* in glasses. *Kenau Hasselaar*, single rosy pink, large bells, very regular flowering sort, good bouquet, enormous bulb. *Miss Aikin*, single rosy white, extra large bouquet of a good form, fine large flowers, bulb of a good size, and perfect form for glasses. *Mozart*, single rosy white, large flowers, good bouquet, a superior sort, bulb fine and large. *Madame de Stael*, single pure white, resembling *Grand Vainqueur*, but the form of the bouquet more perfect, a good forcer, and superior bedding variety; the bulb is very large and well formed; this variety is one of the best of this colour. *Mirandolina*, single pure white, well-formed flowers and extra large bouquet, bulb very large and fine; an extra show variety, good for every purpose. *Jenny Lind*, single pure white, large bouquet, fine flower, well-formed bulb; a variety of great merit, especially as it belongs to the earliest of this colour. *Paix de l'Europe*, single pure white, largest bouquet of all varieties known, surpassing *Mont Blanc*, well-formed flowers, adapted for every purpose, a superior and extra large bulb; this variety is now offered for the first time. *Hermann*, single yellow, orange shaded as *Koning van Holland*, very large flowers and good bouquet, enormous well-formed bulb. *Elisabeth de Valois*, single black, one of the darkest known, superior-formed flowers, bouquet not large, but well formed, good bulb for glasses; a variety much estimated for pot and glass cultivation. *Mimosa*, single black, fine flower, extra large bouquet; a variety much in demand among cultivators in Holland, as it is considered the finest in this colour; good bulb; a superior forcing and bedding variety, which ought to be admitted to the smallest collection.

CROCUSES.—The following is a list of most of the named varieties of these universal spring favourites. They can be obtained of most of the London seedsmen at moderate prices. When grown in pots and forced slowly in a moderate heat, they may be transferred to the drawing-room, covering the soil with some nice fresh moss. They have a beautiful effect in winter, when snow covers their out-door companions. *Albertine*, striped; *Cœruleus multiflorus*, light blue; *Cloth of Gold*, deep yellow; *Cloth of Silver*, white; *Couronne blanche*, white; *David Rizzio*, purple; *Grand Duc*, dark blue; *Grande Duchesse*, white; *Grand Lilas*, light blue striped; *Jenny Lind*, white; *La Candeur*, white; *La Majestueuse*, violet striped; *Large Yellow*; *Laurette*, striped; *Mont Blanc*, white; *Non plus ultra*, large blue, white bordered; *Princee Albert*, dark blue; *Pollux*, white, elegantly striped, large bulb; *Queen Victoria*, white; *Sir Walter Scott*, large, striped, extra; *Sir John Franklin*, dark blue, very large; *Van Speyk*, violet striped; *Vulcain*, dark blue; *Versicolor*, striped.

ON HUMEA ELEGANS.—The culture of this graceful biennial is very easy, but although introduced so far back as the year 1800, it has not been in general cultivation until of late years. No plant has a more graceful appearance than this, when waving its pendent tresses to the breeze, and glittering in the sun. It is particularly adapted for growing in vases or ornamental pots, placed on a lawn, or before a greenhouse. About midsummer sow seeds in a pan of light soil, placing it in a hotbed until the plants come up and are in rough leaf, after which remove them to a cold frame, and give plenty of air, with a slight shading from hot sun for a fortnight. They may then be potted singly in small sixties. Use a light soil, and plunge them in sawdust in a cool frame. Keep them close and shaded until strong enough to stand out, at which time gradually inure them to the sun and air; after which they will only require protection from wet or cold weather. In the autumn and succeeding spring, shift them as it becomes necessary into larger-sized pots, using turfy loam and decayed leaf soil; it is requisite that care be taken not to let them become pot-bound, for if stinted in pot-room, or insufficiently attended to with regard to watering and rich soil, their beauty is much diminished. On the contrary, with liberal treatment their foliage will continue in a luxuriant state until cut off by frost. In winter a low temperature, abundance of air, and light will be found to suit those intended for planting out. Before turning out give plenty of water, and continue the same until they are fully established. If kept for indoor decoration, their appearance is not equal to the show they make on a lawn. Insects are liable to infest the foliage in spring, but a little attention to fumigation with

tobacco-smoke, will be quite sufficient to keep them down. I have had as many as sixty-five plants in bloom in my garden during the past year, creating a fine show.—JOHN HUNT, *Hull*.

LESCHENAUTLIA FORMOSA.—To those who have only a greenhouse, *Leschenaultia formosa* will make a fine display in the spring months. It should be grown in a moderately sized pot, and kept within two or three feet of the glass, for it is very important that it be fully exposed to light, shading only at midday from the direct rays of the sun. It delights in heath soil, with a good portion of silver sand; and due attention should be paid to watering with water of the same temperature as that of the house in which the plant is grown.

BEAUTY OF FLOWERS.—Who would wish to live without flowers? Where would the poet fly for his images of beauty, if they were to perish for ever? Are they not the emblems of loveliness and innocence—the living types of all that is pleasing and graceful? We compare young lips to the rose, and the white brow to the radiant lily; the winning eye gathers its glow from the violet, and the sweet voice is like a breeze kissing its way through the flowers. We hang delicate blossoms on the silken ringlets of the young bride, and strew her path with the fragrant bells when she leaves the church. We place them around the marble face of the dead in the narrow coffin, and they become symbols of our affections—pleasures remembered and hopes faded, wishes flown, and scenes cherished the more that they can never return. Still we look to the far-off spring in other valleys—to the eternal summer beyond the grave, when the flowers which have faded shall again bloom in starry fields, where no rude winter can intrude. They come upon us in spring like the recollections of a dream, which hovered above us in sleep, peopled with shadowy beauties, and purple delights, fancy broidered. Sweet flowers! that bring before our eyes scenes of childhood—faces remembered in youth, when Love was a stranger to himself! The mossy bank by the wayside, where we so often sat for hours, drinking in the beauty of the primroses with our eyes; the sheltered glen, darkly green, filled with the perfume of violets, that shone in their intense blue like another sky spread upon the earth; the laughter of merry voices; the sweet song of the maiden—the downcast eye, the spreading blush, the kiss ashamed at its own sound—are all brought back to the memory by a flower.—*Miller*.

STANDARD LILACS.—When this shrub is treated as a standard, it has a very pretty appearance. It can easily be trained up to a straight stem, and all suckers cut away. It will soon be found to form nice round heads, which may be kept in order with the pruning knife. When grown in this way it blooms in much greater profusion, and if kept in tubs, boxes, or large pots, they can be placed on the lawn when in bloom, and will have a very attractive appearance.—T. JOHNS, *Newcastle*.

THE FIRST PELARGONIUM.—It appears that the first Pelargonium seen alive in England was that called *triste*, a tuberous-rooted species, which has since become scarce. It is thus spoken of by Johnson, in his edition of Gerard's Herbal. "There is of late brought into this kingdom, by the industrie of Mr. John Tradescant, another more rare, and no lesse beautiful than any of the former (Storksbills), and hee had it by the name of *Geranium indicum noctu odoratum*, this has not as yet been written of by any that I know. I did see it in floure about the end of June, 1632, being the first time that it floured with the owner thereof." In the next century many were imported from the Cape of Good Hope by the Dutch; and before 1732 six species were grown in Sherarde's garden at Eltham. Linnaeus knew 25 species cultivated in Europe, and he called them Geraniums. L'Heritier, in 1787, divided the genus nearly as it now stands. In 1812 there were 102 species enumerated in the "*Hortus Kewensis*."

VIOLET-COLOURED GLASS.—It is now a well-established fact that by the use of glass tinted of a violet or blue colour the principles of vegetation are much quickened, and that seeds covered with glass so tinted will germinate much more certainly and rapidly than when no such material is employed. It is the *actinic* or chemical rays which are most effective in promoting growth, and such are known to be most active in the blue or violet end of the solar spectrum. On the other hand, yellow or red light is destructive to vegetation, and seed or cuttings placed under such influence will come up thinly, be unhealthy, and after a long interval. These hints will be sufficient to prove the advantage of having hand-glasses, bells, and indeed the whole of the glass used for horti-

cultural purposes, slightly tinted blue. A few sheets of such glass may be used with much success in promoting the germination of seeds, one being placed over the top of each pot, until the seeds have made their appearance.

ON THE PROPAGATION OF THE *ERYTHRINA CRISTA GALI*, AND *LAURIFOLIA*.—As soon as the plants of the *Erythrina* have done flowering (or even plants that have not flowered at all, but have ripened their wood tolerably well, will answer the same purpose), cut them down, and make as many cuttings of the stems as there are buds, preserving, if possible, the leaf to each bud, and if the buds are opposite each other, as is sometimes the case, the stem may be split, if near the bottom, where the wood is hard and well ripened; for this part of the stem will root, even without the assistance of the foliage. Indeed I have found that the top and bottom, that is, the hardest and softest parts of the stem, root more readily than that which is in an intermediate state; but the ripest wood is best. Having prepared the cuttings, plant them separately in small pots, with the eye or bud just below the surface of the mould, which should be light and sandy, the piece of the stem which forms the cutting being laid flat; then immediately place them under a hand-light, on a strong bottom heat, so that the heat under the glass may range from 75 to 80 degrees Fahrenheit, shading regularly when the sun is likely to scorch them, or dry up the moisture; for they should be kept constantly well watered. In three weeks they will be rooted, when they may be gradually hardened, till they will bear a shady part of the stove. Thus, from every single stem, no less than from twenty to thirty plants may be annually raised; and if the flowering plants are forced, so as to make them flower twice a year, double that number may be obtained.—JOHN MORGAN, Cambridge.

CLINTONIA PULCHELLA.—As many find it difficult to get the seeds of this beautiful little flower to germinate, I recommend the following treatment as both easy and certain. Let the seeds be sown in fine soil in a shallow pan, and covered lightly, and a little sand sifted on the surface; after about a week, water them through a fine syringe till the water rises to the surface, which keep up to the mark, and the plants will rise freely without heat.—W. DUMBRILL, *Beechland*.

TENACITY OF LIFE.—A plant may lose nearly half its weight by drying, and yet be restored by care. De Candolle has recorded an instance of a *Sempervivum caespitosum*, which had been placed in a herbarium for eighteen months, and from which he afterwards detached a living bud and reared a plant. But the tenacity of vegetable life is best exhibited in the property which seeds possess of retaining their powers of germination, after having been exposed to very considerable degrees of heat and cold. Some also, which have partially germinated, may be again dried and kept for months, without losing the power of germinating afresh, although they are sensibly weakened by such treatment. The revival of plants among the cryptogamic tribes, after a very long suspension of the vital functions, is well authenticated.

TO DESTROY CATERPILLARS ON ROSE-TREES, AND OTHER PLANTS.—When the buds are just unfolding themselves on the rose-trees, a number of small green caterpillars frequently make their appearance, and begin to eat the small buds. I immediately make a strong decoction of common tobacco-leaves; I let it get quite cool, and, when the dew is completely evaporated, I sprinkle the trees all over each morning, by means of a watering-pot with the rose on, till every part is thoroughly washed with it. I continue this operation three or four days successively; and, should rain come on about the time of sprinkling, so that the liquid is carried off, as soon as the foliage is dry the sprinkling must be again repeated. It will soon be found that the caterpillars all disappear, and the undisturbed buds will then unfold themselves. I have practised this method for some years with complete success, and indeed never found it to fail; so much so, that even buds that were pretty far advanced and almost eaten through by the caterpillars, soon began to unfold the remaining mutilated leaves and petals. I am fully persuaded of the utility of my plan, and confidently recommend it to the notice of your readers.—H. S.

REMARKS ON THE *MITRARIA COCCINEA*.—The annexed is an account of my method of flowering the Scarlet Mitraria. It is a plan which I have found very successful, my plants being literally covered with fine flowers. After the plant has bloomed, I turn it out of pot and shake off a portion of the old soil, repotting it into a size rather larger

than that previously employed, in a mixture of equal parts of loam, leaf-mould, and friable peat, well incorporated. In this compost the plants will be found to do well, and flower luxuriantly. A cool greenhouse suits them best, for although it was expected to prove hardy, I do not find them bear the exposure with me, in the north of England. It is a plant which is well calculated to become a universal favourite, and I am certain that with the above treatment it will flower very freely.—*D. M.*

WATERING PLANTS.—It is always best to give one good watering that will sink into the ground to the lowest roots of the plant, than to give a dozen slight sprinklings. It effects more good, and lasts longer.

TEMPERATURE OF STOVES, ETC.—It is mostly the practice with gardeners when heating greenhouses, stoves, pits, etc., to have the fires made up at night, and of course considerably raise the temperature. Now we must always, in artificially growing plants, try to imitate nature as close as possible, therefore always allow the houses to be somewhat cooler instead of warmer, otherwise the plants will be forced more in the night than the day, which is not the case with nature.

TEN-WEEKS STOCKS.—To possess a splendid bed of fine double Ten-weeks Stocks, sow the seed broadcast about April, in an open bed or patches, well manured, and with fresh soil added if required; and lest the seeds should be a great proportion single, sow thick enough to allow three out of four being taken out. As soon as they show by the bud whether single or double, pull out the single, and pinch off the centre flower-stems of the double, this causes them to make fine strong plants, which soon fill the bed with a profusion of fine strong spikes of entirely double flowers, the admiration of all, and the surprise of those ignorant of the means by which it has been produced.—*J. Hopwood.*

ON BORONIAS.—This is a very pretty and interesting genus of New Holland plants; all the species are remarkably free flowering, and some are to be seen in bloom at almost any period. If the following remarks on their treatment be deemed worthy of a place in the next month's number, I shall be glad to see them inserted. The soil which is best adapted for them is a *fibrous* and *very sandy peat*, and it is absolutely necessary to use great precaution in potting, to give them *complete drainage*; in fact, much of the success of growing them is dependent on this point, as they require the most assiduous attention, in watering during the summer season. The application of this element should be in small quantities, and supplied frequently; so that, whilst anything like *excess is avoided*, the plants may never experience the least *degree of want*. They require abundance of light, and therefore should never be crowded by other plants; they will be found to grow vigorously, if submitted in spring, after potting, to a slight increase of temperature. A pure atmosphere is essential to their growth; but, like *Epacris*, they cannot bear exposure to a current of air, or even being placed very near where air is admitted, as they are exceedingly liable to suffer by an exposure to cold winds. They require to be kept in the greenhouse during the summer, and are much benefited by slight shading during hot sunshine. In tying, spread out by little twigs, so as to keep the centre of the plants open, thereby allowing a free circulation of air and light. If these conditions are complied with, healthy and vigorous-blooming plants will be the result.—*W. Knight.*

REMARKS ON THE VEGETATION, ETC., ON THE PERUVIAN ANDES.—Then comes a new zone of this abundant vegetation, while a glance down the giddy steep enables the naturalist to desery, even by the different shades of green, the separate regions of plants which he has passed, and which nowhere rise with greater regularity, and more accurately defined, than they do in these Andes. A new zone then commences, which might be imagined similar to those regions of the mountains in Northern Europe, if the mild air, the deep blue sky over head, and, between the thick-woven trees that cover the ground, levelled by the winter's storms, the violet, *Amaryllis*, and variously tinted *Alstrœmerias* did not severally appear to dispel the delusion in which the wanderer may have indulged. It is a work of no small labour to force one's way through the tangled growth, that insidiously envelopes many a sharp stone and many a deep cleft; but no danger is here to be apprehended from poisonous snakes, gigantic stinging ants, or any of those numberless tribes of noxious animals which inhabit tropical climes; as none of them exist in this highly favoured region. Now, the last shrub is passed, and the ground becomes more stony, whilst the increasing purity and coldness of the air cause

every respiration to be drawn with a sensation of positive delight. Fresh treasures have burst upon the view, and reward the adventurous mountaineer, who is often compelled to relieve his full heart by uttering loud shouts of joy, to which his faithful dog, the sole companion and witness of his delight, responds by many a yelp of exultation, and by rolling on the snow and playing sundry fantastic gambols. It were useless labour to attempt enumerating here the individual plants that are successively seen when climbing the highest ridges of these rocks; and I may only mention, that no naturalist can imagine the Alpine Flora of the south of Chili to be so beautiful to the sight and so attractive to the scientific observer as it actually is. All that the Cape of Good Hope and New Holland can exhibit in their arborescent flowers, which, without attaining the gigantic growth of tropical forests, are yet inexpressively charming—all that the Alpine productions of Europe can present, in their miniature forms and myriads of small leaves, may be found happily blended in the plants of these Andes; as everywhere in Chili the Compositæ prevail, and you can hardly recover from the surprise of seeing numerous Senecios exhibiting their golden blossoms among their showy white or grey leaves, when you stumble on blue Perezias, and low shrubs of the Amellus, which bear united the foliage of the Rosemary and starry blossoms of the Asters, together with the reddish Lasiorrhiza, and the moss-like Nassauvia, species of a genus that is confined to the extreme southern part of South America, and of which three forms are here seen.—*Companion to Botanical Magazine.*

DEUTZIA GRACILIS.—Few plants, among the recent introductions to our gardens, possess more interest or have proved more valuable than the *Deutzia gracilis*, not only as an ornament for the shrubby border, but also for pot cultivation. As a plant for early forcing, for the decoration of the conservatory, and also for cutting for bouquets, it is one of the most useful. Like its congeners, it is readily propagated by cuttings of the young wood, which require to be taken when it is in a half-ripened state. If the wood is strong and healthy, it will not be necessary to cut the cuttings at a joint, as they will strike just as freely if a leaf-bud and about an inch below is taken with it, and thus each joint or bud will make a plant. To ensure the cuttings rooting quickly, a gentle bottom heat will be necessary, and they must also be covered with a glass, to prevent the undue evaporation of the moisture of the cutting. In cultivation, any light rich soil will be suitable, such as a mixture of turfy loam, leaf-mould, and gritty sand; and when planted out, any enriched garden soil will suit it. As a pot plant it will require much the same treatment as *Wiegela rosea*—that is, the wood must be thoroughly matured in the autumn, to ensure its blooming profusely when forced. We cannot imagine anything much finer, when grown to a good-sized specimen, than this very graceful plant, as, by judicious stopping, it may be trained into a very compact and elegant form.—A. MARSHALL, *Duffield*.

TO PROTECT TENDER PLANTS DURING WINTER.—When it is found necessary to protect many of the beautiful flowering tender plants, the following method is recommended, incurring very little trouble, as well as being much neater and more effectual than most other methods. For tender shrubs, as standard Fuchsias, Rhododendron arboreum, Escallonias, Camellias, Salvias, Mesembryanthemums, etc., make frames in the following manner:—Take four strong stakes, strong hazel rods, insert them in the ground at equal distances round the plant, so as to clear the ends of the shoots; then unite the tops together to one point, and secure them there. Then cut, with a fine-toothed saw, some notches up the two sides of the rod which are outwards; having done this, take a quantity of deal laths that are about an inch and a half broad, these are then nailed to, crosswise, in doing which, commence at the bottom, and having fastened the first tier, place another above that, and so proceed to the top. In nailing the laths, place them in the notched part of the uprights, so that they overhang each other a quarter of an inch, but not to have the lower edge of the lath above to touch the upper edge of the lath below it; allow a space here of a quarter of an inch; this is easily effected by the notches being cut for the purpose. The openings at the overlaps admit air and light to the plant, but at the same time exclude wet from it. Both these advantages are of importance, in order to obtain the object desired. With very tender kinds of plants, strew in, previous to putting the case over, some dry fern-leaves, commonly called brake or braken, among the branches, this will keep them perfectly dry through winter, answering every desired end. Where brake is not to be had, branches of

beech, with the leaves upon them, furze, or broom may be used to answer the same purpose. Cover the ground over the roots, to the extent of two or three feet, according to the size of the plant, and about six inches deep with chaff from the corn-mill, sprinkling it over with an inch or two of soil, to prevent its being displaced by the wind. This keeps dry under the covering, and preserves the roots better than any other material, such as bark, sawdust, leaves, etc. The framing of laths, etc., should be painted, and though used many years they will be as good as when new. Take off the frame from the plants when the severe weather is over, usually about the middle of April. The above kind of covering is far preferable to that of thatching over with straw, which keeps the plants dark, and the straw often becomes mouldy, and kills the plants. Coverings of wicker-work do not answer, the wet dripping through the covering, and being thus kept damp inside, more damage is done than if left exposed to the open air. For smaller plants, coverings of the lath framework suited to their size can be made. With such covering *Maurandia*, *Lophospermum*, etc., may be preserved without sustaining any injury.—*George Godfrey*.

IXIAS, THEIR CULTURE IN THE GREENHOUSE AND OPEN BORDER.—Having for some years cultivated *Ixias* in such a way as to excite the admiration of all who have seen their luxuriance and beauty, I forward my plan of treatment. Early in spring, I prepare the following compost, namely: one part peat soil, one leaf-mould, one river sand, and one part rich loam; I burn and chop them at least three times during summer, when it is fit for use. About the last week in October I commence potting my plants, in pots about five inches across, well drained; after slightly covering the pot-stands with moss, I fill them with the above compost to within one inch and a half of the top. I then plant, at equal distances, five or six of the finest bulbs, and fill up the pot, making them pretty firm (if the soil be dry); after potting, I place them in a cold frame, and occasionally sprinkle them with water, and let them remain there until the pots are well filled with roots. In March I commence taking them to the greenhouse, at about 55° or 60°, in succession; and they will be found to exceed the most sanguine expectations. When the flowering season is over, I continue watering so long as any signs of life appear, but more sparingly as the tops decay; when quite dead, I lay the pots on their sides in the back shed, or any other dry place, where they remain until potting-time again. I keep all my bulbs, when dormant, in the pot, as I find them a great deal stronger and not shrivelled, as when taken up. Such of the bulbs as I do not pot, I plant in a border in front of the stove, at least four inches deep; I also cover the border with the old soil from the pots, being full of small roots, which will be found to strengthen the bed very much; if these be covered with a little litter in winter, they will be found to flower very beautifully for several months in summer.—*Harriet*.

COLOURS OF FLOWERS.—The fugitive property of some colours is well known, and in no way better exemplified than as they naturally exist in flowers. The fume arising from a common sulphur match, which is, in fact, sulphuric acid, will change purple and crimson colours to pink. The blue, in combination with red, is readily discharged; indeed, a pink or purple flower might be completely bleached by holding it in the fumes of sulphur. Thus *Roses* and *Dahlias* have been made to assume a variegated and very novel appearance. Bright pink stripes and veins may be produced on the dark purple petals of *Pansies*, and other dark-coloured flowers, with a camel-hair pencil and oil of vitriol, to yield rather a pleasing effect. Such lines should not be drawn to the edge of the petal, or a little injury will soon be evident; nor should they be strong nor near together, as they quickly spread.—*Maud's Auctarium*.

SALVIA GESNERIIFLORA.—The brilliant scarlet flowers of this plant make it a most attractive object in the greenhouse. As soon as it has done flowering, cuttings should be taken off, and struck in a moderate bottom heat; and when struck, harden them off gradually, till they will bear placing in the open air. Repot as they require it, using soil as follows:—Two parts turfy loam, and one part rotten manure. Give them plenty of drainage, but never let them want water. A little weak liquid manure will assist them. I always bloom my plants in large pots. By liberal treatment, I get good specimens by autumn, some of which I use for early forcing (for which purpose they answer admirably), while others come in well for blooming in the greenhouse. I never keep the old plants a second year, as I find young ones, well managed, do better, for they not only bloom more satisfactorily, but the flowers are much larger.—*Mid. Flor.*



JENNY LIND.

The Floricultural Cabinet.

AUGUST, 1856.

ILLUSTRATION.

CAMELLIA JAPONICA, *var.* JENNY LIND.

THE Camellia was first made known to Europeans by the accounts of some of the earlier travellers to Japan and the East, who related having seen in those countries rose trees rivalling the oak in size, with shining dark green foliage; and until the time of the Jesuit missionary, G. J. Kamel, in 1739, these relations were considered fabulous or exaggerated. The latter traveller procured two plants of the single red variety, which he succeeded in bringing to Europe, and disposed of for a considerable sum to Lord Petre, who sent them to his gardener, Mr. James Gordon, at Thornden Hall, in Essex, and not being acquainted with their treatment, the latter placed them in a stove temperature, which killed them. Mr. Gordon (who had previously taken a nursery at Mile End) procured another specimen in 1742, which he treated as a conservatory plant, and from it propagated a large stock, which was rapidly disposed of. The original plant stood in Mr Gordon's conservatory so late as 1837, when the nursery was broken up for building purposes. Since the above time many species and varieties have been introduced to and raised in this country, which it is unnecessary to particularise, and the Camellia has, in the variety now selected by us for an illustration, approached perhaps as nearly to perfection as it is possible to obtain it. Jenny Lind, which we now figure, is the property of Messrs. Henderson, of the Wellington Road Nursery, St. John's Wood, who purchased the stock of Mr. W. Mackenzie, of Philadelphia, America, for the large sum of *two hundred pounds*; in their nursery it has bloomed, and proved to be the finest Camellia yet sent out. In form and outline it is extremely good, the centre being well up and the petals arranged with great regularity; it is a pure white, with faint streaks of clear rose colour. We do not doubt that all who see it in bloom will consider it, as it really is, a fine acquisition to this lovely tribe of plants.

REMARKS ON CAPE HEATHS.

BY T. BUTLER, ESQ.

YOUR contributor "Amator Florum" (see number for July) brings to my recollection the period when I was quite an enthusiast in floriculture, and when the Cape Heaths pre-eminently claimed my attention, as being among my greatest favourites. I was therefore anxious to obtain success in propagating them, and having fully succeeded with regard to the fast-growing and slender-wooded varieties, I sent an article on the subject for insertion in the *Gardeners' Magazine*, where it is to be found in the eighth volume, at page 681.

As I considered the usual method at that period a tedious one, in regard to the time the cuttings took to strike, I tried several means to accelerate their striking, and eventually succeeded to my most sanguine wishes. If an abstract from the subject above alluded to may be thought worthy for the *Cabinet*, I give it for insertion, as perhaps many of your readers may not have access to the Magazine where it is to be found, and although it may be underrated, on account of it not being strictly original, yet the subject is in my estimation an interesting one, and may perhaps be useful to the lovers of one of the most interesting and beautiful tribe of plants which we have in this country. As what is here given is confined to the propagation of *Ericas*, it will not run counter to what "Amator Florum" has written on the *general* mode of their cultivation, and which I think is a good article on the subject.

"Early in the month of April, or as soon as the young shoots were about an inch long, I made choice of my cuttings. In taking off and trimming them for planting, they were handled as delicately as possible, for when so young they are extremely tender. I then cut them with a keen knife as near as possible to where they had been joined to the old wood, and put the ends of them into water until I had a sufficient number to make up a pot. This done, I made choice of one suitable in size to receive the striking-glass; I filled it up nearly two-thirds with crocks and the siftings of peat, and the remainder with peat very finely sifted, which I moderately pressed down, after pressing the striking-glass on the mould, in order to get the line of its circumference. I proceeded, with a dibber about the size of a small quill, to plant the cuttings, which was done carefully, without pressing them much, rather leaving them to be fixed by watering, than with the dibber. The pot being filled with cuttings, I watered them, standing at some distance, with a very finely perforated syringe, elevated so as to let the water descend on them like a gentle shower of rain. This was repeated several times, until I conceived the whole of the mould to be completely saturated; after which the glass was set over them, and the pot placed in the front of the greenhouse. A gentle syringing was repeated every morning for

the first three weeks, and afterwards every other morning for about three weeks more. At this period many of the cuttings had begun to strike, and as soon as this was observable less watering was resorted to. In about ten weeks many of the cuttings were fit for potting off, which was immediately attended to, and, after being potted in thumb-pots, they were placed under a handglass or cold frame, in a shady situation, where they were gradually hardened by giving air, until they could bear exposure. Great care was taken in removing them from the cutting-pot, by gently raising them with a small piece of wood, cut for the purpose. They generally rose with little balls, around the outsides of which I could frequently perceive numerous small fibres protruding themselves, as white as milk. During several years' practice in raising Heaths in the above way, I have many times observed the small fibrous roots striking out two or three joints above the surface, making their way down the cutting to the mould.

"The success of the above mode I found rested principally, if not entirely, upon the state of the cutting, and the health of the mother plant. The cutting should neither be of the strongest nor of the weakest growth; and it is almost needless to add, that the plant should be healthy from which the cutting is taken. With regard to the varieties of slow growth, it is but seldom that cuttings can be found on them to ensure success by this method, as they are generally too thick and turgid, as well as the sorts too tardy in their growth; but I am convinced that means might be used with many of them so as to obtain cuttings that would strike in the above way, and of this I once had a proof. On visiting a gentleman's garden about ten miles distant, I perceived an *Erica* which had been improperly left in a house where forcing had been commenced; it was so drawn that its former habit was completely changed. On asking its name, I was told it was the *E. depressa*. It instantly occurred to me that cuttings from it in that state might answer my purpose. Accordingly I begged a few, and the result was that under the above treatment every one of them grew, to the number of about a score.

"The species of very easy growth, such as the *ignescens*, *gracilis*, etc., I took less pains with, by putting the cuttings under a hand-glass, on a north border, which, under the above treatment of watering and well draining, succeeded to admiration. I found by experience that the sooner the cuttings were potted off after taking root the better, as by remaining long in the cutting-pot they become drawn and sickly; their drawing might be prevented, by confining one sort to a pot, as air might then be given in any proportion. But in my case it was different, having frequently, through the want of a sufficient number of striking-glasses, four or five sorts together in a pot, some of which took less time than others to strike. However, under any circumstances, experience taught me early potting was best, as I found that they would not remain long in a healthy state in the striking-pot. I had not the opportunity of trying how they would

strike in sand by the above method, as I could obtain none of the proper kind in that part of Cornwall where I resided. After potting, when the plants begin to grow, if their tops are taken off they will throw out side shoots, and during the following spring form nice little bushy plants. The usual practice of daily wiping the glasses is useless in this mode of propagation.

"Many persons, no doubt, are great admirers of this beautiful tribe of plants; but, through the difficulty often found in propagating them, they are induced to give up the task, and thus deprive themselves of the pleasure they would derive from having a collection of them under their care. On the supposition that one or two hundred kinds can be propagated by the above simple method, and that some others may be raised from seeds perfected in this country, a choice collection might be kept up at an easy expense, by purchasing now and then a few of those which, on account of their peculiar growth, structure, or delicacy, are difficult to propagate."

By way of addendum, I beg to add another extract from an article of mine in the *Gardeners' Magazine*, vol. ix., page 584. "During my residence in Cornwall, having a number of duplicates of Cape Heaths for disposal, I was struck with the idea that a clump of them out of doors would have a novel effect, and that if they flowered well, would make a handsome addition to the flower garden. I accordingly made choice of a situation; after excavating and laying a thick drainage of brickbats, broken pots, etc., which I covered with dead fern-roots and other matter, I covered it with peat earth to the depth of about ten inches, and in the month of April turned out my plants, many of which grew to admiration, and flowered beautifully the following autumn. Having succeeded thus far, and feeling fearful lest they should be disfigured, or perhaps killed, by the winter's frost, I proceeded to erect a temporary frame over them, with melon-lights, old sashes, and feather-edged boards; the latter serving for the back and nearly half of the roof, sloped backwards, and the old sashes for the front and ends, so that the whole, when finished, looked something like a little greenhouse; the lights were always off in mild weather, and also in frosty weather during the day, when the sun shone. In summer the plants grew rapidly, presenting a most beautiful foliage, with flowers of a very superior character, and, consequently were much admired by all who saw them. The species consisted of *Erica coccinea*, *verticillata*, *grandiflora*, *cruenta*, *ignescens*, *versicolor*, *mammosa*, *costata*, *tubiflora*, *Archeriana*, *curvisflora*, *concinna*, *exurgens*, *vestita*, *cerinthoides*, *ventricosa*, *baccans*, *Sparmanni*, *spuria*, and *melastoma*, with some others which I do not now remember. At the end of three years, when I left, the plants had arrived at a fine state of maturity, presenting a foliage delightful to the view, with a profusion of flowers in succession, according to their different seasons of flowering, far superior to any I had ever before or have ever since seen. I am inclined to think that very few of the Cape Heaths will survive the winters in Cornwall entirely without protection; however,

I know of one exception in the *Erica scoparia*, which although not possessed of so much floral beauty as some others, is, when it has grown up conically to the height of four or five feet, in the very delicate and beautiful appearance of its foliage, a truly interesting species; in this state it has a most attractive appearance, and has been much admired. A plant of this species has stood out for three winters, and when I last saw it, it was in full vigour, and highly ornamental as a shrub in the place where it stood.

REMARKS ON THE GENUS TRITOMA.

BY A COTTAGER.

THIS very ornamental genus is not quite so generally cultivated as I think it ought to be, for very few plants can compete with its beauty, possessing handsome and very attractive flowers, a striking foliage and habit, combined with much hardiness. Their culture is easy, succeeding well in a light rich soil or sandy loam, and propagate freely by suckers or from seed. The situation chosen for them should be a rather sheltered one, and where there is a free drainage; any warm corner of the garden or border under a south wall, sheltered from cold winds, will suit, and they will repay the trouble of their cultivation with a profusion of their handsome spikes of bloom. Should frost be excessive, a covering of leaves round the roots will protect them. They may also be grown well in pots, but should in such a case be removed to the protection of a frame or cool greenhouse in winter. There are four varieties known in our gardens, of which I have five plants in my possession, which have for several years gratified me with a rich display of bloom. Of these, *Tritoma uvaria* is the oldest species, having been introduced just a century and a half. The spikes of flowers are from one to two feet in length, covered in the autumnal months with tubular-shaped flowers, of a brilliant orange-red colour. The foliage is herbaceous, of a pale green, and grows rapidly, the plants sending up a succession of suckers, which soon form a large bushy tuft. *Tritoma Burchellii* is not quite so hardy as the above; the flowering spikes are however longer, and the whole plant of stiffer and more rigid habit; it does not grow so freely as the foregoing, but is nevertheless a very showy variety; the flowers yellow and clear red. This is best propagated from seeds. *Tritoma media* and *T. pumila* are smaller-growing kinds, of free habit, and very pretty; the spikes from about ten to twenty inches in length, and their colour bright orange. They are all natives of the Cape of Good Hope colony, flowering late in the autumn, and even in mild winters, at which time they are beautiful companions to our Chrysanthemums, and other, though few, late blooming plants; indeed it is always with me a subject of wonder that they are not far more generally cultivated than they are in our gardens.

NOTES ON THE BOTANY OF THE MONTH.

BY MR. EDWARD SHEPPARD, BURY.

"Little weather, prophet, say,
Fair or foul the coming day?"

THE common English Pimpernel, *Anagallis arvensis*, in full bloom this month, is frequently called the Shepherds' Weather-glass, because the corollas never expand in rainy weather, or when the air is overcharged with moisture; on the contrary, when the weather is dry and the sun shining, this pretty little flower bespangles our fields with its bright red eyes in a most agreeable manner, but which regularly close as Phœbus retires to "the chambers of the west." It is generally to be met with in ploughed fields and gardens, particularly in light sandy soil. Several members of the curious Orchis family are now in bloom, among which are the Butterfly Orchis, *Habenaria bifolia*, distinguished by its long and slender spur; the Fragrant Orchis, *Gymnadenia conopsea*, flowers light crimson, in a long spike, and very sweet scented, found in dry pastures and on heaths; the Spotted Orchis, *Orchis maculata*, with light purple dotted blossoms, and spotted leaves; the Bee Orchis, *Ophrys apifera*, having a large labellum or lip, much like a bee, the segments of the perianth resembling antennæ and wings of the insect, rose coloured. Several other kinds might be enumerated did space permit, some more or less rare than the rest. Fancy appears personified in this singular family, and remarkably curious as our native species are, they are far surpassed in this respect by their representatives in tropical countries. Their flowers are always grotesque in shape, sometimes fragrant, and generally of brilliant colours. Our Orchises are difficult to preserve in the garden, but are well worth seeking for in the field, not only on account of their peculiar forms, but for their beautiful colouring. When a youthful botanist, I well remember how perseveringly and ardently I sought for some varieties of this tribe, one of which, the *Ophrys apifera*, I only met with in one spot, and have not seen it in a wild state since.

"Bright insect-seeming flower! thou art indeed
Of thy gay family a curious child.
When first I met with thee, upspringing wild,
Hard by the path where did my footsteps lead,
How caught with admiration did I stop,
And cull thee from amidst the grassy spires!"

The queen of the waters, *Nymphæa*, is in full bloom this month. There are two British varieties of the Water Lily family, *Nymphæa alba* and *Nuphar lutea*; both frequently met with in quiet and sequestered pools. The former has been called the "Lady of the Lake," "Naiad of the Stream," and the "Swan among the Flowers;" and no one can behold it covering the dark waters of some shady

pool with its broad, dark green, shining leaves, and offering to the god of day its expansive, large, cup-like flowers, without admitting the justice of these appellations, and admiring its surpassing grace and majesty. Mrs. Twamley says—

“ Oh! come to the river's bank, come to us there,
For the White Water Lily is wondrous fair,
With her large broad leaves on the stream afloat,
Each one a capacious fairy boat.
The ‘Swan among Flowers’—how stately they ride,
Her snow-white cups o'er the rippling tide.”

The Yellow Water Lily, though neither so large nor so attractive as the white, is yet a fine flower, and makes a nice contrast when grown together.

If any one will take the trouble to pay a visit this month to Wimbleton Common, they may meet with that scarce plant the round-leaved Sundew, *Drosera rotundifolia*, growing in moist and boggy situations; this is almost the only station where this little floral darling is now to be met with, and it will well repay the search for it, being not only elegant in appearance but curious and rare; in height it is not more than about three inches, and is destitute of stem, except that supporting its small, rather insignificant, white flowers. The leaves all rise from the root, and spread like a rosette close to the ground: when young they are curled up, and of a pinky hue; when older, green, covered with red glands or hairs, at the end of each hair is found a little globule of a sticky juice, like a drop of dew, which gave rise to the common name of this plant, not being evaporated by the sun's rays. It has been designated the English Fly-trap, for insects settling on the leaves are retained by the sticky viscid secretion of the glands, and unable to get away. There are two other varieties sometimes to be met with, and both with longer leaves, growing in similar places, and equally singular in appearance. Our poets have noticed the Sundew, one of whom gives a good description of it, as follows:—

“ On the pool's half-dry banks here's the red and green hue
Of that small moorland darling, the little Sundew,
Each plant lying close, like a brodered rosette,
Shining redly with ruby gems, thick o'er it set.”

The *Hypericums*, of which there are several varieties, are now in bloom. *H. perforatum*, the perforated-leaved St. John's Wort, is a common variety, abundant everywhere in woods and hedges, rearing its heads laden with rich yellow flowers, to a height of from two to three feet. It is readily known by having numerous small perforations or pores in its leaves, which are best seen when held up to the light. It was anciently thought to be a certain cure for wounds. We read—

“ Hypericum was there, the herb of war,
Pierced through with wounds, and marked with many a scar.”

It was therefore considered to cure by sympathy. *H. pulchrum* is another kind, of smaller growth and well deserving of its name, being delicately pretty; it is equalled by few plants in the abundance of its rich yellow blossoms, which are tipped slightly with red before expansion, and furnished with red anthers; it grows on dry banks and heaths. *H. calycinum*, the large-flowered St. John's Wort, is a very handsome plant, not often found in a wild state, but said to be a British plant, inhabiting bushy places, and very common in our gardens and shrubberies, where it makes a pretty object in the foreground. Coming into flower about St. John the Baptist's Day (June 24th), gave rise to the name by which these plants are commonly known, St. John's Wort.

Our ponds, lakes, and river-banks are at this time ornamented with the Bulrush, *Typha latifolia*, growing five, six, and seven feet in height, the flowering stems crowned with their brown clubs of hairs. The leaves all spring directly from the root, and are very long and narrow, presenting a noble appearance. The male flowers are alone accompanied by the club, the female ones, or anthers, being borne on a separate stalk in a yellow spike. In ditches we may now see the Teasels in bloom; *Dipsacus fullonum*, or Fuller's Teasel, is the most common, growing from three to four feet in height, bearing thick tapering heads of small pinkish purple flowers. The whole plant is covered with hooks and prickles. It is used in the preparation of cloth; for, as Bishop Mant observes—

“No skilful art a tool has planned,
To match that gift of nature's hand.”

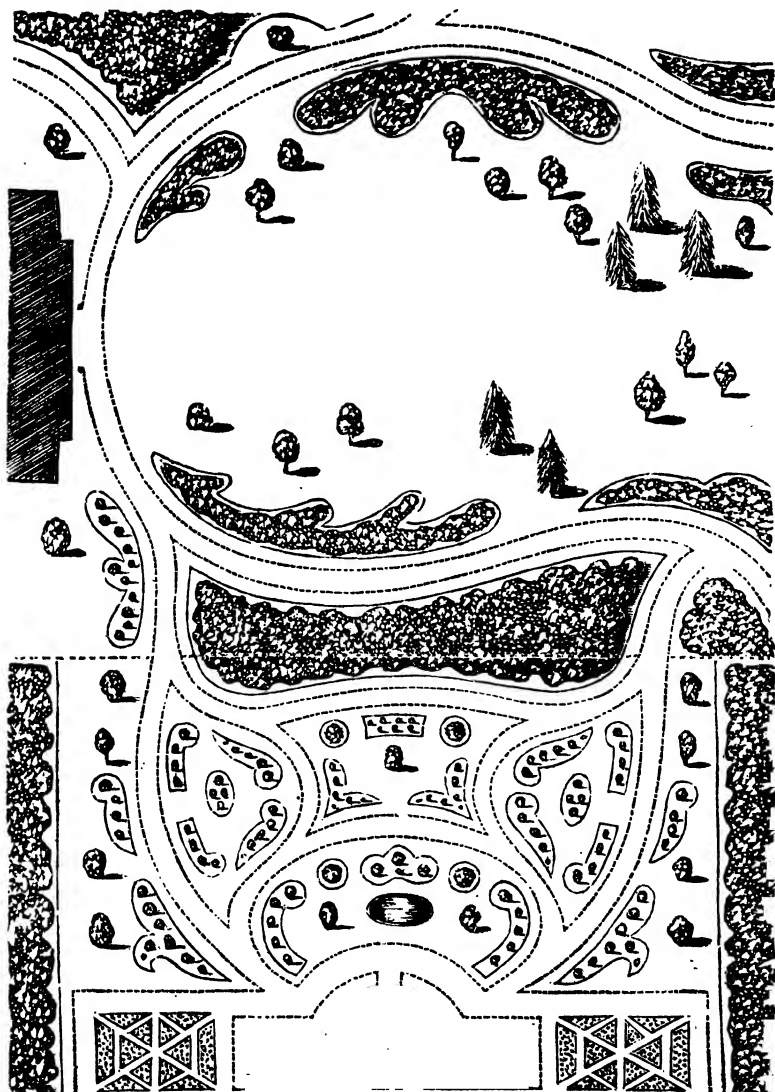
This is the season for our charming wild flowering Heaths, of which we have several species.

“Sometimes with bells like amethyst, and then
Paler, and shaded like a maiden's cheek
With gradual blushes; other while as white
As rime that hangs upon the frozen spray.”

The most delicate English species is *Erica tetralix*, but it is far from abundant. The leaves are placed four in a whorl, and the flowers in round heads at the extremity of the stems, of a delicate blush, shading off to white. *Erica cinerea* is more common, and may be readily known by the leaves being placed three in a whorl, the flowers in long heads, bell-shaped, pink coloured, and rather smaller than the above species. Ling, or wild Heather, *Calluna vulgaris*, so prevalent on heaths and commons, is a beautiful plant; we may now behold our commons and hill-sides empurpled with its charming blossoms. It is very prevalent in the Highlands of Scotland, affording shelter and food to the numerous wild fowl of those districts.

DESIGN FOR THE FLOWER GARDEN AND GROUND OF A VILLA RESIDENCE.

BY T. RUTGER, ESQ.



THE sketch here given presents the east front of a villa residence, with a small portion of the pleasure ground, and a flower garden. Objecting as some may, upon a general principle, to the flower garden being in front of the mansion, in places of considerable extent, the accompanying design is given to show what may be thought a more appropriate situation, where it is supposed to be placed on the south of the kitchen garden, that may be entered at both sides of the flower garden, in which there is a conservatory, and a small parterre at each end, with box or other edgings. The side borders are intended for choice deciduous and evergreen shrubs, the north border for Rhododendrons, etc.; the wall at each end of the conservatory for choice creepers, and the clumps on the grass for flowers. The pond for gold and silver fish may have a fountain in it, or it may be turned into a clump for flowers. There should be a wire fence made to pass through the shrubbery at the back of the flower garden, with entrance gates, to keep out rabbits, dogs, etc.

ON THE ANTIRRHINUM.

BY D. W. T.

THE Antirrhinum is a native of our own country, the parent of all our garden varieties being the *A. majus*, a plant bearing pink flowers, which grows plentifully in some parts of the southern counties of England, where it may be often seen on old walls and other ruins. It is but a few years since this plant attracted the notice of the florist, and has been under his care with a view to further improvement, of which it possesses considerable capabilities, for we have already many good varieties, the earnest, no doubt, of others far superior in shape, size, and colouring. Being by nature very hardy, and flourishing well in almost all soils and situations, and flowering from early summer until the approach of winter frosts, it is well deserving the efforts of florists to improve it, and will repay the care of such as endeavour to carry it on to perfection. It also makes a capital plant for bedding, being dwarf and very compact in habit; in which respect I believe there are few things that can be compared to it, or which require less trouble and attention in cultivation. Having been for some years a grower of the Antirrhinum, and having been successful in raising some good varieties, I send you the result of my experience for publication in your useful periodical.

Early in spring fix upon a border, well drained, in which to plant them, and have it forked over, with the addition of plenty of well-rotted manure, which should be intimately mixed with the soil. Set out the young plants about the end of April, or early in May; a succession may be put in in June. Those planted in April may be expected to flower at midsummer, and a bloom may be secured until

the approach of frost. They should be set out about eighteen inches apart in the beds; as they begin to grow nip off the tops, which will induce them to form compact bushy plants. In dry weather water them well. When in bloom, see that all flower-stalks are cut out as they begin to fall off, which will prevent the weakening effect of the plants running to seed; this exhausts the plants, and the latest blooms are inferior. Young plants flower best, those of a second season never blooming so well. To have early flowers, prepare the beds in the middle of September; put in the young plants, and pay attention to nipping out all flowers that appear, which will make them bushy, and stand over the winter better; early in spring they will come into bloom, and so long as they are prevented from seeding, they will flower for a length of time. In raising them from seed, I prefer to sow in pans or boxes, sparingly, placing them in a cool frame, where they will soon make nice little plants, fit for putting out in the border; or they may be sown on a warm border in August, in a soil that is fine and light. As soon as they are of a sufficient size place them out as above directed.

To propagate by cuttings, take off some of the smaller shoots from the sides, not more than three inches long, prick them in sand, and place them in a cool shady place, under a handlight, giving attention to watering, and they will speedily root; it is very seldom that such cuttings fail, and when they do, it is most frequently in consequence of their being allowed to remain too dry. The *Antirrhinum* will also do well grown in pots, especially if the latter be of a large size, I generally use eight-inch and upwards; the compost should be light, and rather rich. A good drainage is essential. To make nice bushy plants let them be frequently topped, and the side shoots pinched in. I have never found them make nice plants if grown in pots in-doors, for, unless plenty of air be admitted, they will be weakly and drawn up, flowering but poorly in consequence. All my best plants are out-of-door ones.

Trusting these hints may be found useful, I would add that the attention of lovers of this flower should, in my opinion, be paid more generally to obtaining size rather than marking, by the crossing of such varieties as produce the largest-formed blooms.

ON WINDOW PLANTS.

BY EXONIENSIS.

HAVING read the article by your correspondent, Mr. James Thompson, on the management of plants in windows and balconies, permit me, by way of addendum to his paper, to say a few words on a tribe of plants in which I am much interested, and which will, with proper management, be found well adapted for such a situation—I allude to the Cactus tribe. They possess a number of advantages over other

house plants, among which I may enumerate that they require but little attention when out of flower, they make no litter of leaves, and are not very apt to become infested with insects. I believe there are no plants which require less attention from those who very frequently have little time to attend to their house favourites. Some of this tribe will afford a magnificent display of blossoms, and when properly treated will amply repay the slight attention which they demand. The ruination of window Cactuses is generally improper attention to watering them. In the tropical regions, where they are indigenous, they are often without a drop of moisture for a length of time together, whereas our uninformed window gardeners frequently make a practice of giving them a supply once a week the year round; need we wonder at hearing such complaints about "my Cactus does not flower." In Mexico, when, after the dry season, the rains set in, those withered, dry, coarse-looking Cactuses spring up with renewed vigour, and, as if by magic, are full of flower in a very short time. This is the plan pursued by nature, whose guiding hand we should endeavour to follow.

Most of your readers will know the old-fashioned Creeping Cactus, *Cactus flagelliformis*, with long tail-like shoots, of a pale green, covered with short spines, and which produces an abundance of pretty star-formed pink flowers; this is one of the best window plants. It may be grown in several ways, none better perhaps than placing it on a suspended board about the middle of the window, in a pot provided with a saucer, to prevent the dripping of the water given to it. It may also be trained to a light trellis, and thus treated it makes a very pretty object in a short time. I have sometimes seen it grafted, half a yard high, on plants of the genus *Pereskia*, such as *P. Bleo*, or *P. aculeata*, a Cactus nearly allied; it will then form a considerable head, the branches drooping down, and will flower freely. There are two other sorts which will do well grafted on the same species, namely, *Cactus truncatum* and *C. truncatum violaceum*; the former is a very handsome variety, producing large pink flowers from the sides of the stems, so much so as to overload them sometimes; the latter is also very handsome, the flowers of a deeper purple tinge, but not so free blooming as the former. Trained on a neat trellis, they are charming plants when in full bloom.

Besides the above there are several others of this tribe which do well in the window, such as *C. speciosa* and *speciosissima*, *Epiphyllum Ackermanii*, and many hybrid varieties raised from these; also several varieties of *Mammillaria*, *Aloe verrucosa*, and the Partridge-breasted Aloe. *Mesembryanthemums* are a serviceable class for the window, more especially *coccineum*, *aureum*, *muricatum*, *tigrinum*, and *dilatatum*. A favourite of mine, *Crassula coccinea*, will show abundance of its rich scarlet blossoms, almost too dazzling to look upon; and *Sempervivum arachnoideum*, in small pots, may be considered a curiosity for the window, looking as if covered with a spider's web. As before remarked, water must be withheld from them

until their natural period of blooming approaches, when it may be given about once every ten days or a fortnight until they cease blooming, and they will be found to do well.

REVIEWS.

Rustic Adornments for Homes of Taste. By SIBBLEY HIBBERD.

(Continued from page 146.)

EVEN in town a goodly collection of the hardier sorts may be preserved, if every care be taken to give them a suitable soil and abundance of water. Any one passing Chadwell Street, Clerkenwell, may see in the area of a house but two doors from St. John Street, a very noble group of *Pteris* and *Lastrea* growing in a stone trough, and apparently left very much to shift for themselves, and to trust to the every-day weather for the supply of their wants. Yet these are not the most hardy of our *British Ferns*, and the handsome healthy appearance of the plants referred to will convince any grower of Ferns that a very goodly collection might be sustained in any moderately open districts of our most smoky towns.

Ferns artificially grown, and tended with proper care and skill, exceed very much the beauty of those grown by nature. True, we cannot grow the *scene* as well as the *Fern*—we cannot have the dark glen, the damp moss-grown cave, the decayed tree trunk, or the crumbling archway of the waterfall. The scenes amid which Ferns grow, the lovely secluded spots which they seek out—shy wood-sprites that they are—are the chief charms of the associations they always suggest to us; for they do haunt the greenest and coolest nooks, the most mossy and ancient banks above water-brooks that trickle from unseen founts, in the dark recesses of wild rocky caverns, and under the branching arms of twisted greybeard oaks and ancestral beeches—spots only discovered by the explorer of woodbine coverts and deep hidden shades, where, searching for rare beauty, he finds far excelling his anticipations, and checking his silent footsteps by sights that hold him breathless with surprise. Yet though we cannot have the mountain dells, and creeping thorns, and purple knolls of wild *thyme*, we may have the emblems of them in our little mural paradise—we may have the Ferns to suggest such things, and to keep alive the remembrance of pleasures and of scenes which keep a coolness in the brain and a freshness in the heart—breathings of fragrance from the green world, that sweeten the resting-places in the march of life.

Where a garden wall affords the necessary shade for one side of the Fernery, the rockwork should be so arranged that *in summer* a fourth part of the structure shall enjoy a full and deep shadow. The rockwork may either be adapted to its general configuration to the nature of the ground and the view we wish to obtain of it, or thrown up in a square or rounded outline, slanting upward from the base, and with a rugged or smooth surface, as may suit the taste of the planter.

The best material is dark rock or vitrified bricks, with some masses of grey limestone and granite, all sobered down in colour. The foundation should in some parts be of builders' rubbish, or a mixture of broken bricks, tiles, and old lime-rubbish, and in others a stratum of clay, on which the superstructure should rest. The builders' rubbish will ensure dryness for those plants which naturally grow on rocks, walls, and other aspects, where they are exposed to much light and little moisture, and these usually delight to have their roots in fissures of limestone, old mortar, or crumbling rock. The clay will serve to retain the moisture about the roots of the more amphibious kinds; the marshy species requiring as close an imitation of their natural soil as can be accomplished.

Those Ferns which grow beside waterfalls and in dripping caves require to have their fronds constantly wet, while others thrive best if kept comparatively dry. If a perforated pipe can be carried over one side, for the good of the water-sprites, such as *Scolopendrium*, *Osmunda regalis*, and others of similar habit, they may be kept constantly drenched; and without some provision of that sort many kinds cannot be grown at all.

The soil should be varied to suit the various habits of the plants, but for the general purposes of Fern-growing, a compost of old mortar, sandy earth, peat, and broken charcoal is best. Some kinds will require composts made expressly for them, which we shall indicate in the lists of Ferns for a Fern garden. In planting these, the crevices or holes into which they are to be set must be filled with the proper soil; but the root-stocks often penetrate to a great distance, beyond the range of the compost in which they were originally planted. A good supply of soft peaty earth, rotten wood, and leaf-mould is essential in Fern cultivation.

Where the cultivator would choose a still simpler plan, so as to avoid the necessity of preparing a special soil for some of his favourites, the whole may be built up with a foundation of sandy loam and old lime and brick rubbish, and afterwards made up with a compost of two parts of heath-mould, two of rotten leaves, and one of broken flower-pots in small pieces; most Ferns will thrive in such a compost, if kept moist. The exterior may be faced with rockwork, or may be smoothed round the sides at an angle of about forty-five degrees, and the summit made flat, or the form of a rounded hillock may be given it; care being taken to secure shade for at least one-third portion, and occasional sunshine only for the remainder, except on the south side, which may enjoy the full blaze of the summer's sun. Among the best Ferns for rockwork are the Polypodies, most of which under culture assume a greater beauty and duration of verdure than in their natural sites. The common Polypody may be known by its pale green elongated and lance-shaped fronds, in which the lobes are flat, oblong, and blunt pointed. At the back of the ripe frond the seeds or sori, a series of circular brown spots, will be found clustering thickly towards the extremity. This species is very common, and may be met with in damp hedgerows, and on the stumps and trunks

of trees. It is a noble plant in rockwork, or among rustic work and tree stumps. It loves moisture, and will grow in almost any situation. When pendg from the trunks and exposed roots of old trees, on deep shady banks, under which circumstances it is often seen naturally, it must be ranked as a decidedly ornamental object. We shall have to refer to this work on a future occasion, and in the meantime we repeat our recommendation of it to all those who take a pleasure in "rustic adornments for homes of taste."

A Dictionary of Botanical Terms. By the REV. J. S. HENSLow, M.A., Professor of Botany in the University of Cambridge. 12mo, pp. 218. London, Groombridge.

THIS Dictionary has been published at intervals, portions being appended successively to the monthly parts of *Maund's Botanist*, and *Botanic Garden*. It contains a copious list and explanation, illustrated by nearly two hundred woodcuts, of the Latin and English terms employed by botanical authors, both of the old and new school. Such a work as that now before us affords every student a ready reference to any term employed or to be met with in botanical authors, whether still in use or obsolete. It is certainly to the difficulties which the undue extension of our botanical nomenclature has thrown in the way of beginners, amounting to some two thousand terms, that so many are prevented from commencing, or turned aside from the study of systematic botany. To assist and to smoothen the way of students, this neat little work will be found invaluable.

GRAND FLORAL EXHIBITION, CRYSTAL PALACE.

THE second great Floral Fête of the present season at the Crystal Palace was held on Wednesday and Thursday, the 25th and 26th of June, on which occasion £605 was awarded in prizes for plants and cut flowers, and £174 for fruit. The weather was very fine, and the total number of visitors on the two days was 27,875. On the whole, we consider the exhibition a very good one, and the arrangement of the plants, though different from the last show, was effective. In the great central transept was an immense circular stage, forty yards in circumference, five stages high, on which the larger collections of stove and greenhouse plants were arranged; on the top of all was placed a fine specimen of the Norfolk Island Pine, the whole forming a grand cone; right and left of this were stages of Ferns and Orchids.

Of collections of 20 stove and greenhouse plants, Mr. May, gardener to H. Colyer, Esq., Dartford, had the best, followed by Messrs. Veitch and Mr. Gedney, gardener to Mrs. Ellis, Hoddesdon. They comprised some noble examples of Heaths, Dipladenias, Pime-lias, Clerodendrons, Allamandas, Ferns, Rondoletias, etc. Among

the smaller collections of stove and greenhouse plants, Mr. Green, gardener to Sir E. Antrobus, Bart., Cheam, exhibited a specimen of *Gardenia Fortuni*, with abundance of its charming white blossoms, perfuming the air for a considerable distance with their fragrance, some good *Allamandas*, *Kalosanthes miniata*, and other well-grown plants. Mr. Carson, gardener to W. F. G. Farmer, Esq., some fine *Aphelexises* and *Azaleas*, among which *A. Gleditsiesii* was very conspicuous, being quite a pyramid of bloom. Messrs. Veitch had a very fine collection of plants with variegated foliage, comprising *Arundo Donax*, *Dracæna Draco*, a fine *Livistonia Bourbonica*, *Aralia pulchra*, *Musa zebrina*, *Maranta Warscewiczii*, *Ocrotia pictum*, the handsome rich-looking *Ocissus discolor*, *Pandanus argenteus variegatus*, and in front a new variation on *Coleus Blumei*, named *pectinatus*, streaked and mottled with brown and jagged leaves; a variegated kind of *Yucca aloëfolia*; also a *Hydrangea* with green and white leaves. Messrs. Thomas Jackson and Son, of Kingston, had a good collection in this class also, containing *Solanum variegatum*, with large leaves, richly veined with crimson, *Aspidistra lurida*, and other fine plants. From Messrs. Lee, of Hammersmith, were *Caladium pictum bicolor*, *Begonia splendida*, some pretty *Crotons* and *Marantas*. Mr. Morris, gardener to C. Child, Esq., Bromley; Mr. Young, gardener to W. Stone, Esq., Dulwich; Mr. Parker, Paradise Nursery, Holloway; and Mr. P. Bassett, gardener to R. S. Holford, Esq., M.P., Weston Birt, exhibited other collections of this interesting class, which comprised many good specimens of variegated *Sarracenias*, *Orchids*, and *Ferns*.

Orchids were not very numerous, but good. Among large collections, the best was from Mr. Gedney, who furnished various *Cattleyas*, including *C. Harrisonia*, *Odontoglossum citrosum*, *Calanthe Masuca*, *Epidendrum verrucosum*, and a handsome Bearded *Cypripedium*. Mr. Woolley sent *Stanhopea tigrina*, *Sobralias*, *Phalænopsis*, *Aerides*, *Cypripediums*, and *Lycastes*. Messrs. Veitch obtained a first prize for a beautiful collection of twenty plants; among which were *Anguloa Ruckeri*, with two large brown-spotted orange blossoms, *Oncidium pulvinatum* and *phymatochilum*, *Aerides Lobbi*, a capital plant of *Cypripedium barbatum*, *Lalia pupurata* (an extremely fine species, with large white flowers and purple lip), *Vanda tricolor* and *suavis*, *Saccolabium guttatum* and *Blumei*, *Odontoglossum hastilabium*, the pinkish-lilac *Barkeria Lindleyana*, several *Cattleyas*, the best variety of *Odontoglossum grande*, and the handsome *Cypripedium barbatum superbum*, having flowers streaked and mottled with brown. Of *Orchids*, in collections of twelve, Mr. Bassett had some pretty plants, consisting of *Aerides*, *Cattleyas*, *Cypripediums*, and *Dendrobies*. From Mr. Clarke also came a group both well grown and flowered.

Among Variegated *Orchids*, were *Physurus argenteus* and *pictus*, and *Anætochilus setaceus*, *intermedius*, *xanthophyllus*, and *Lowi*, exhibited by Messrs. Veitch and Mr. Woolley.

Pitcher plants were well shown by Messrs. Veitch, who contributed *Nepenthes lavis*, *sanguinea*, *Rafflesiana*, *lanata*, *ampullacea*, and *phyllamphora*. A group of similar kinds was also shown by Mr. Gedney.

There were some beautiful collections of Ferns, the best of which was from Mr. Fletcher, gardener to Dr. Young, of Kennington. It consisted of *Polypodium spectabile*, *Nephrolepis Davallioides*, *Lomaria magellanica*, and *discolor*, *Alsophila Colensoi*, *Asplenium Belangeri*, *Platynerium grande* and *alcicorne*, *Gymnogramma lanatum*, two small-leaved *Gleichenias*, and *Davallia tenuifolia*. Messrs. Veitch also had fine plants of *Platynerium alcicorne* and *grande*, *Davallia solida*, *Gleichenia microphylla*, *Dicksonia antarctica*, three *Adiantums*, the pretty *Gymnogramma ochracea*, *Thyrsopteris elegans* (a very handsome kind), *Neotopteris vulgaris*, and a *Davallia*. Mr. Cutbush, of Barnet, also exhibited a group of well-grown Ferns, among which was a fine plant of *Gymnogramma ochraceum*. Mr. Sim, of Foot's Cray, showed sixty British specimens, among which were some remarkably fine ones.

Of Lycopods, Messrs. Bassett and Cutbush had well-grown plants of *viticulosum*, *Galeotti*, *inequalifolium*, *uncinatum*, *umbrosum*, *Wilddenovi*, and the small *apodum* and *lepidophyllum*.

A collection of tall-growing Cacti, in good condition, were shown by Mr. Green, and contained *Epiphyllum aurantiacum*, *speciosum coccineum*, the beautiful rosy pink variety of *speciosum* called *elegans*, and other well-known sorts.

A considerable number of Cape Heaths were exhibited by Messrs. Williams, Roser, Peed, May, Cutbush, Jackson, and others, comprising good plants of *Shannoni*, *oblata*, *Savilleana*, *Westphalingia*, *gemmifera*, *Massoni*, *florida*, *odorata*, *ventricosa*, *magnifica*, *elegans*, and different varieties of *tricolor*.

Of Azaleas there were not many, and such as were exhibited were getting past their best. Roses were exhibited by Messrs. Lane, Paul, Francis, Wilkinson, Hollamby, and other growers. Among the best we may notice the following, which were very fine:—Juno, H. C., delicate shaded rose; General Jacquinet, H. C., purple-crimson, large; Mrs. Bosanquet, C., delicate creamy flesh; Narcisse, T., sulphur-white; Duchess of Sutherland, H. P., rosy blush, large; Boula de Nanteuil, G., large, purple-crimson; Princesse de Lamballe, A., snowy white; Géant des Batailles, H. P., vivid crimson; Frederick II., H. B., purple-maroon; Gloire de Dijon, T., fine, creamy sulphur; William Griffiths, H. P., pale bright lilac, fine form; Miss Hargrave, C., single, yellow and crimson, distinct; Devoniensis, T., delicate pale sulphur; Fulgens, H. C., vivid crimson-scarlet; Belle Marie, H. C., beautiful deep pink; Yellow China, C.; Chenédolé, H. C., large, vivid crimson; Louise Peyronny, H. P., bright pink, large and beautiful; Blairii, No. 2, H. C., splendid bright rose; Solfaterre, N., large, bright sulphur; Paul Ricaut, H. B., bright crimson, large and full; Auguste Guinnoisseau, H. P., deep red, large and new; Coupe d'Hebe, H. B., large, bright pink; Smith's Yellow, N., beautiful

Chinese green dye. *Citrus*, species, a new Orange from the north of China, considered hardy; it is of singular habit and foliage, very unlike this tribe, the leaves somewhat resembling those of *Jasminum nudiflorum*. *Abies Kämpferi*, a new Larch, from the north of China also, said to grow 150 feet high, and is perfectly hardy; its foliage is very fine.

Of Pinks, Ranunculuses, Irises, Pansies, and Pæonies, there were some stands from Messrs. Tyso, Salter, and others, of which lists will be given in an early number of the *Cabinet*.

NOTES ON NEW AND SELECT PLANTS.

137. *PTERIS HETEROPHYLLA*. Nat. Ord. *Filices*.—Mr. Wilson, of the Jamaica Botanic Gardens, recently sent this Fern to Kew. It was gathered in the moist woods of Westmoreland County, in the island of Jamaica. It is not an abundant species, but was detected by Sir Hans Sloane (who named it *Ruta muraria major*) in the locality of the Rio d'Oro and Orange River, in the interior of the country. Though not often met with by botanical collectors, it has been observed in St. Domingo, Cuba, and Rio Janeiro. It is a distinct and rather pretty species, somewhat resembling a tall variety of the Wall Fern, *Ruta muraria*. (*Bot. Mag.*, 4925.)

138. *RHODODENDRON HOOKERI*. Nat. Ord. *Ericææ*.—Introduced by Mr. Booth from Bootan, where it grows along with *R. eximium*, forming entire thickets, upon the Oola Mountain, on the north slopes of the Pass of Lablunga, accompanied by *Pinus excelsa*, at an elevation of from 8000 to 9000 feet above the sea; "frost and snow," says Mr. Booth, "being very severe and continuous in this locality." It is a tall, upright-growing shrub, attaining from twelve to fourteen feet in height on its native mountains; the flowers are about the same size as those of *R. Thomsoni*, to which the present species appears allied, of a bright crimson, about an inch and a half long, and one inch across the mouth; the branches are clothed with a pale buff polished bark; the foliage is very thick and smooth, from three to six inches in length, and during winter much curved back, the edges nearly meeting the midrib at that season. (*Bot. Mag.*, 4926.)

139. *COLLINSIA VERNA*. Nat. Ord. *Scrophularinææ*.—An annual of recent introduction, a native of Kentucky and the western interior of North America. It is a plant of singular beauty, and will, no doubt, become very popular, and prove a charming bedding-out species. It grows from nine to twelve inches high, erect, and bears a profuse succession of flowers, the upper lip of the corolla being pure white, and the lower one azure blue, with white rays, under side pink. (*Bot. Mag.*, 4927.)

140. *RHODODENDRON CAMPANULATUM*; *var. WALLICHII*. Nat. Ord. *Ericææ*.—Plants of this lovely variety have been raised at Kew, from seed received from Sikkim, which bloomed in the month of

May last. The flowers are about two inches and a half across the mouth, white throated, shading off to pale lilac-purple towards the margin of the corolla; the foliage is of medium size, dark green, with the petioles and scales of the leaf-buds of a dark red colour. (*Bot. Mag.*, 4928.)

141. *B. FALCONERI*.—Another of the beautiful Himalayan Rhododendrons which have bloomed this year for the first time. The present species has been flowered by Messrs. Standish and Noble, of Bagshot, in an open frame, merely protected at night by a mat; also with Mr. Fairie, near Liverpool. It is a very striking species, not only from the colour and size of its heads of flowers, but also from the magnificence of its foliage. It grows on the summit of the Tonglo Mountain, in Sikkim—Himalaya, at an elevation of 10,000 feet. The flowers are produced in large heads, pale sulphur-yellow, broadly bell-shaped, upwards of two inches across the mouth; the leaves are from eight to ten inches long, about four inches across, dark green, and beneath ochreous; leafstalks pale green, somewhat woolly. (*Bot. Mag.*, 4924.)

QUESTIONS, ANSWERS, AND REMARKS.

MANDEVILLEA SUAVEOLENS.—Will this plant bloom in a cool greenhouse? I have one which has lived through the winter, and made some shoots this spring, but is always covered with green fly.—*Martin P.* [A strong infusion of chamomile or tobacco water, sprinkled liberally over and underneath the foliage, or suffocate by smoke, will readily kill the insects, and the plant may easily be kept free in future. Stop them at first appearance. The *Mandevillea* will bloom freely in a warm greenhouse.—*Editor.*]

CLEMATIS SIEBOLDI.—*Florista* will feel obliged to any of the numerous readers of the *Floricultural Cabinet*, who will inform her of the most successful method of growing and flowering this charming plant.

RHODODENDRONS.—I shall esteem it a favour if you or any correspondent will let me know, through the medium of your Magazine, what is the best time of the year for cutting down large Rhododendrons. I have some eight to ten feet high, which look old and unsightly; I should feel sorry to spoil them by unskilful treatment, and shall be obliged by a reply.—*Juvenis.* [The best time for performing the operation is in spring, when they are about to push their shoots; the young wood that is produced has then a season to get ripened in, and is often vigorous; if cut late in summer, the shoots, being tender, are often destroyed by a severe winter, and the old plant is in danger from it; when performed at the time advised success will follow.—*Editor.*]

ON COMPOSTS SUITABLE FOR GROWING FLORISTS' FLOWERS.—Having often experienced the inconvenience of being obliged to refer from one book to another for a description of the composts suitable for different flowers, I have collected some of the most approved together, thinking they might be useful to many of your readers. I send them for your insertion. *Carnations*: 1. Two-thirds fresh loam; one-third rotten frame-dung, with a little sand. 2. One-half loam; one-half rotten frame-dung, with a little sand. 3. Five-sixths of No. 1 or No. 2; one-sixth leaf-mould, good for Picotees. 4. One-third loam; one-third peat; one-third two-year-old cow-dung. *Ranunculuses and Anemones*: Two-thirds loam; one-third rotten cow-dung. *Dahlias and Narcissus*: Loam well manured. *Hyacinths*: 1. One-third sea or river sand; one-third loam; one-fourth rotten cow-dung; one-twelfth leaf-mould. 2. Two-sixths grey sand; two-sixths well-rotted cow-dung; one-sixth tanners' bark, quite rotted; one-sixth tree-leaves, well rotted. *Pinks*: Two-thirds loam; one-third two-year-old cow-dung. *Tulips*:

Good sound loam. *Auriculas*: 1. One barrowful of loam; one barrowful of leaf-mould; one barrowful of old frame-dung; one barrowful of two-year-old cow-dung; one peck of river sand. 2. Two barrowfuls of sandy loam; one barrowful of leaf-mould; one barrowful of two-year-old cow-dung. 3. One-half rotten cow-dung; one-sixth loam; one-eighth leaf-mould; one-twelfth sand; one-twenty-fourth decayed willow wood; one-twenty-fourth peat; one-twenty-fourth ashes of burnt vegetables. *Polyanthuses*: 1. One barrowful of sandy loam; one peck of leaf-mould; one peck of old cow-dung. 2. One barrowful of well-rotted cow-dung, or leaf-mould; one-half barrowful of white sand; two barrowfuls of good loam. *Heartsease*: Three barrowfuls of fresh loam; one barrowful of one-year-old horse-dung; one peck of sand.—D. PEARCE, *Wakefield*.

Dioscorea Batatas.—I beg leave to offer a few remarks on the subject of the *Yam*, or *Dioscorea Batatas*. I went to sea, and happened to touch at Ceylon, where the captain had ten bushels of it brought on board for the voyage home. The bulbs weighed about 2 lbs. each; when cut in half, a sort of milk ran from them. The largest were nearly as hard as the root of some trees; the small ones, about the size of a walnut, are curried by the natives, and are very good; but when they are larger and have been out of the ground a month, they are, when cooked, floury, tasteless, and a person gets tired of them in a very short time. They will never supersede the potato, in my opinion. I brought some home, having had them planted nearly six months, in thirty-two-sized pots; in three months they yielded three tubers each, about as large as a goose's egg; which when cooked my friends thought were beautiful at first, but after eating them three or four times, they said they would rather have potatoes without animal food, than yams with it. I also brought some sweet potatoes home from the Isle of France, but they were rotten. I hope this will appear before the public, as I am assured that if they are grown largely in England, it will only be to fatten pigs with; they will be very useful in that way.—*A Reader of your Journal, and a Sailor*.

APPEARANCE OF LEAVES EXAMINED WITH A MICROSCOPE.—The back side of a rose-tree leaf but especially that of a sweet briar, appears to be diapered most excellently with silver. The back side of the leaf of English mercury seems as it though were rough cast with silver, and the ribs appear to be stuck full of round, white, transparent balls, like innumerable grapes or oak-apples, or a bracelet of crystal with footstalks, by which they are fastened to the ribs and fibres of the leaf. A leaf of rue seems to be full of holes like a honeycomb; a sage leaf is like a white rug or shag, full of knots tasselled with white silver thrums, having one or two fine round crystal beads or pendants, as big as peas, fastened to every knot. Look at the back side of a nettle leaf, and you will see it full of needles, or rather long sharp transparent pikes, every needle having a crystal pommel, presenting the appearance of a sword-cutler's shop, full of glittering drawn swords, tucks, and daggers. Of a similar appearance are the prickles of borage leaves and stalks.—*Field Nat. Magazine*.

CHOROZEMAS.—This tribe is generally considered by amateurs difficult to cultivate; but they can be grown well by pursuing the following method. The soil should be a sandy peat, well broken with the spade, but not sifted. The best time for potting is March or April. Care must be taken not to over-pot the plants, or injure the roots while potting; the soil must be made very firm and compact about the roots, and the pots well drained; then they should be placed in the greenhouse in an airy situation, and not crowded among other plants. It is also well to keep them in the greenhouse during summer; but in hot weather they should be shaded for two or three hours each day during sunshine. They require a reasonable supply of water; that is, they must not be sodden, nor left too dry. They may be propagated in the following manner: the cuttings should be taken off and carefully prepared while the wood is young; take off the bottom leaves with a sharp knife, and make a clean cut horizontally just through the joint; the cutting-pot should be drained, and then filled to within an inch of the top with the soil above mentioned; on the top of this put a layer of white sand, into which put the cuttings, making a hole for their reception with a small stick. When the pot is full, give them a little water with a fine rose; after which, place a clean glass over them: in this state they may be removed to the propagating house, where the temperature should be 70 degrees. They should be shaded from the sun, which can be done by placing a sheet of coarse paper over the glasses. As soon as the cuttings are rooted,

which may be known by their appearance of growth, they must be potted off; but care must be taken not to injure the roots, and they must be shaded again for a week or ten days, until they make fresh ones; they must then be gradually hardened, and placed with the old plants in the greenhouse.—*Alpha (Gard. Chron.)*

OXALIS FLORIBUNDA.—Were I desired to select the most picturesque plant, yielding a long-continued and profuse crop of flowers without artificial attention to its after-growth, I should without hesitation fix upon this. It is a dwarf, tuberous, herbaceous plant, rising from two to four inches in height, each plant forming a terminal crown of leaves (similar to a small-growing Clover), from the centre of which arises a profusion of bright rose-coloured flowers, continuing in succession from June until September. The principal precaution required for its successful management consists in adapting the soil to the tuberous structure of its roots, which differ from most others in their thick, fleshy, unbranched form, capable of absorbing an excessive amount of fluid, beyond what is required for the support of the simple crown of leaves upon their summit. As a general rule, the amount of soil, and the nutritive properties which it contains (when applied to plants), should always bear a strict relation to the extent of growth which they are capable of maturing during the current year. Every degree beyond this is an evil, which lessens the vital energy of their organs. To induce fertility in the plant, an artificial soil should be prepared in equal portions of old light garden-loam, heath-mould, and well-washed river or silver sand, and well incorporated with finely broken brick refuse, equal to one-third of the whole amount. Thus treated it forms a very beautiful object, either for edging or in the parterre, and when seen expanding its bright blossoms for successive weeks, it appears as one of the few objects of which it may be remarked that it has “few equals, and no superiors.” In common with some others, this interesting plant is much degenerated by the inferior varieties from seed, which have almost supplanted the original species, the former being much less compact in their growth, and less brilliant in their flowers. The latter is known by its leaves being not more than from two to three inches in length, and by its flowers being uniformly circular, and firm in their texture, varying from bright to darker shades of rose colour, and, when found in favourable situations, the profusion of bloom almost covers the foliage.—*W. Wood.*

PROPAGATION OF THE ANEMONE JAPONICA.—If a root of this plant be taken from the ground, after flowering, it will be found to resemble brown cord, divided into a great number of ramifications. Upon its surface will be perceived a great multitude of little white conical projections, sometimes growing singly, sometimes springing up in clusters, and occasionally producing scales on their sides. They are young buds, every one of which, if cut from the parent, will grow, and form a strong young plant in a few weeks. These buds are not confined to the main trunk of the root, but extend even towards its extremities, so that every fragment of the plant is reproductive. Such being the case, he who possesses an *Anemone Japonica*, has nothing to do but turn it out of its pot, when at rest, clean its roots, chop them into pieces about half an inch long, and then place them in some light fibrous soil, near the surface, in a gentle hotbed, and in a few weeks he will have as many healthy young plants as he may have chopped the root into pieces. Such is the wonderful power of reproduction in this plant, to which, indeed, we have few parallels.—*G. C.*

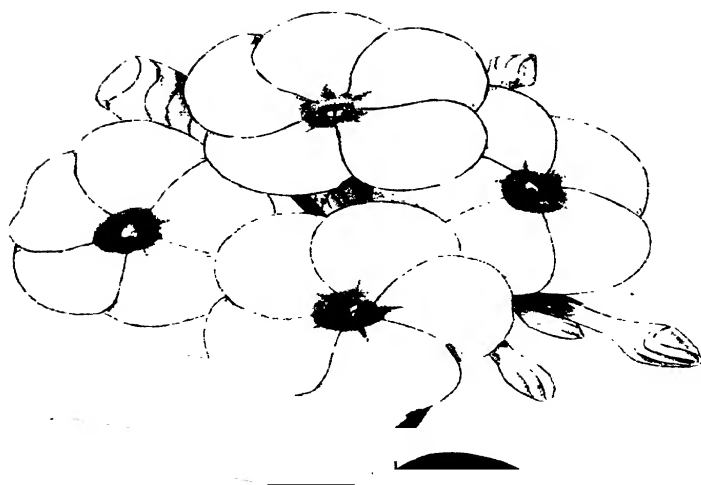
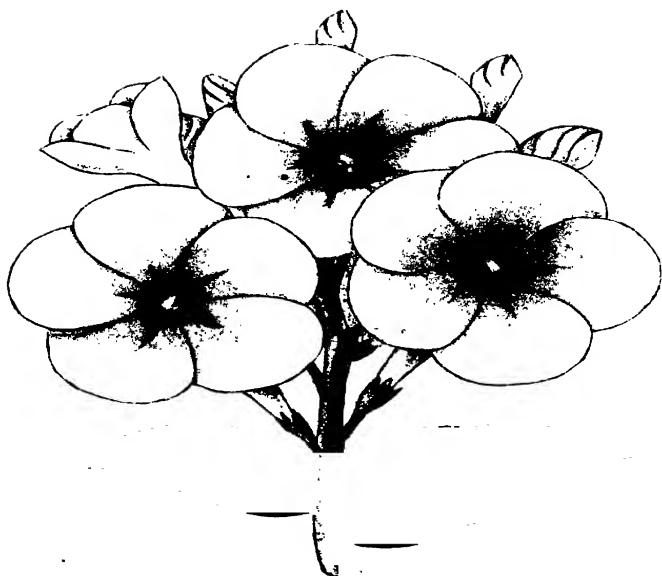
ON SUPPORTING PLANTS BY STAKES.—Primary importance must be attached to the time at which support of any kind is to be afforded. The principal evils to be corrected in the methods at present pursued are staking plants at too late a period, and doing it with unsuitable materials, or in a slovenly way. If a specimen be not early staked, however neatly this operation may be afterwards performed, it will ever betray the neglect from which it has suffered, and can very rarely be brought into the required position. Beyond this, there is the danger of being broken or injured from wind and other causes, to which it is exposed prior to staking, and the fact that it is not necessary for stakes, when timeously applied, to be so strong; when, by consequence, they are not rendered so prominent or perceptible. Let a plant be staked while it is small or young, and its appearance will remain as natural as if it had not been staked at all; but wait till it has begun to straggle, and no subsequent care will suffice to relieve it of the constrained unnatural aspect it must then be made to wear. Whatever material be employed for supporting plants, the chief object should be to conceal the stakes; and hence they

ought to be as straight and free from projecting parts as possible, and as short and slender as comports with the purpose for which they are designed. Crooked stakes, those which have irregular and broken branches, such as are unnecessarily stout or tall, and stakes made of a soft pliable wood, or having too rugged an exterior, are exceedingly unfit for ornamental uses in the case of erect-growing species. The most proper are those which are smooth, straight, free from irregularities, just strong enough to effect their object, and so long as to reach only within a few inches of the top of the specimen, or as high as support may be needed. There are likewise many objections to the ordinary modes of applying stakes, or fastening plants to them. It is wrong to place the stake between the plant and the path from which it is looked at; for the object that ought to be hidden is thus made most conspicuous. It is improper to thrust the stake into the earth near the stem of the plant, particularly if it be a tuberous-rooted or bulbous species; since much damage may be done to the specimen, and probably some of its main roots and sources of sustenance be cut off thereby. For the same reason, it is equally erroneous to use a stick that is not prepared with a long smooth tapering point, or has any considerable asperities on the portion that is to enter the ground.—*M. S.*

CHINESE GARDENING.—The Chinese, with that practical application of facts to purposes of utility which so pre-eminently distinguishes them as a nation, have availed themselves of some of these features in their landscape gardening. To convey the appearance of distance, trees of the loftiest and largest growth, with foliage of the deepest green, are selected for the foreground. Others of smaller stature and more subdued shades are placed in the distance; whilst to vary the surface and increase the apparent extent, groups of suitable trees, selected also with a due regard to the influence of the seasons, are judiciously scattered about. To aid the effects produced by vegetation, representations of old ruins, receding walls, and timeworn rockwork are all made available.—*Hinds, in Annals of Natural History.*

ON MAKING NEW LAWNS.—There is a good deal more in the operation of forming a nice velvety lawn, than the ordinary method adopted of cutting irregular “sods,” and as irregularly laying them down again, would warrant a person in believing. The piece of ground intended to be turfed should be ploughed or spaded over pretty deep, and brought to a good surface by harrowing, removing all roots of perennial weeds likely to grow if left in the soil. The ground should be levelled and graded so smooth that a tightly stretched garden line will show no hills or hollows of importance; except the character of the situation be a wavy one, when the eye must determine its undulations. All stones should be carefully cleared off. Select a spot for cutting the turf as free from strong grasses and weeds as possible—land that has been grazed off pretty close as waste land is the best. Take what is called an edging iron or other sharp instrument, and mark the turf into strips three feet long and one broad, holding the handle perpendicularly, and cutting two or three inches deep. Then take the turving-iron if obtainable—if not, a very sharp spade, and cut up this turf one inch and a half deep, rolling each one up separate, as you would a piece of oilcloth. Commence laying the turf at one end, putting down the part to the left hand, and unroll to the right, being careful to keep all the edges close together, and the work square, which it will be if the turf is taken up properly. Go over the whole with a turf-beater—a flat piece of wood with an auger hole bored in it, to receive the handle; edge out the borders and walks, and occasionally pass over a heavy roller, and you have a smooth and level surface. Providing the space is large, and turf difficult to be got, the whole may be levelled as directed, being very careful to kill all weeds, and the following grass seeds sown, which in time will form a good sward, but looks naked at first:—Red-top, *Agrostis vulgaris*, and white clover, *Trifolium repens*, in the proportion of three-fourths red-top to one of clover. Sow at least three bushels to the acre of the red-top, as the object is to get a thick verdure.—*E. S. T.*

STOCK SEED.—When the plants are in bloom look them over, and mark all flowers on the single plants that have five, six, or seven petals, by tying a piece of coloured worsted on the footstalks of the flower. When the seed is ripe, preserve the pods thus marked by themselves. The plants produced from this seed will be found to contain, eight out of every ten, double flowers.—*T. W. WHITE, Leek.*



DOCTOR LEROY
MADAME FONTAINE

The Floricultural Cabinet.

SEPTEMBER, 1856.

ILLUSTRATIONS.

PHLOX, *var.* DOCTOR LEROY, MADAME FONTAINE.

THE two new Phloxes which we figure are continental varieties, of great excellence, being very distinct in colour, as well as of good form and habit. We are pleased to remark that our friends in France are turning their attention to this pretty tribe, and, from what we have seen of French hybrids, we entertain no doubt that they will improve on all the kinds at present in cultivation. Phloxes constitute an elegant genus, generally very free blooming, and are the more valuable from their lively flowers being produced, in succession, from April or May until the appearance of winter, and no flower garden should be without a selection. When grown in masses, the taller varieties in the centre of the bed, they are very showy; and indeed all the varieties are worthy of cultivation. The soil which suits them is a good strong loam, well enriched with manure, on a dry subsoil. Cuttings strike readily in sand, either in pots or in the open border, under hand-glasses, in a shady situation. The following is a list of some of the best new varieties at present in cultivation:—Doctor Leroy, dark rosy crimson, distinct eye, a fine trusser, growing three feet high. Madame Fontaine; this is one of the most beautiful, the form excellent, a pure white, having a distinct clear carmine eye, habit dwarf and compact, the truss of flowers of great depth and pyramidal form. Lychniflora, deep rosy crimson, ruby centre, good form and compact dwarf habit. Madame Deslandes, rosy peach, eye deep crimson, height three feet. Madame Marmod, white, shaded and pencilled pale crimson. Madame Rendatler, white, with a clear pink eye, very large trusses of bloom, dwarf habit. Pauline Deffaut, white, with deep crimson eye, very good form. Mademoiselle Albertine, delicate rosy lilac, white eye, dwarf. Mademoiselle Henderson, white, with a deep violet eye, very large trusser, three feet high. Rêve d'Amour, peach, bright carmine eye, very fine and distinct, medium height. Omniflora compacta; this is a very dwarf white-flowered variety, and, in consequence of its compact and free-flowering habit, is one of the best Phloxes for bedding purposes.

REMARKS ON THE TREATMENT OF THE RANUNCULUS.

BY MR. WILLIAM GRIGOR, SPONDON.

THE flowers of all plants in an uncultivated state being single, the circumstance of more than the natural number of petals being produced in cultivation is, I think, to be attributed to the greater quantity of nourishment afforded them than nature has provided. To grow double flowers in perfection therefore, it is obvious that they ought to be supplied with as much of the richest nourishment as they are possibly capable of receiving, provided this can be done without injuring the health of the plant. In the case of the *Ranunculus*, if the necessary quantity of manure be applied without precautions being taken to keep the tubers from coming in contact with it, however well reduced and incorporated with the soil it may be, there is considerable risk of their becoming diseased, particularly of being attacked by a small whitish insect that abounds among all richly manured soils. To guard against this, I adopted the following method, which has been found to answer exceedingly well, the bloom produced being such as not easily to be surpassed:—After the roots are lifted, the bed is dug over fully 18 in. deep; the mould all along the surface is then removed to the depth of about 4 in., and its place filled up with a mixture of short horse and cow-dung, not more reduced than is necessary to make it fall easily in the working. This is turned very lightly down, barely covering it: it is again turned over in October, and well mixed with the mould, taking care to keep the manure near the surface, as the lower stratum will be sufficiently enriched with what is washed down by the winter rains. It is then raked quite level, and lies in this state till the time of planting, which should be as early in February as possible. The bed will then have sunk down considerably. To meet this, a quantity of rich fresh loam is laid up in autumn under a shed, or where well defended from rain. As much of this dry earth is now spread over it as raises it exactly 2 in. from the intended height. The roots are then placed on the surface in squares of $3\frac{1}{2}$ in. or 4 in., a little sea sand spread over them, and then covered up with dry earth, taking particular care not to bury them deeper than 2 in. from the *bottom* of the tubers. They are thus kept quite separate from the manure, while, by having it so closely under them, they derive as much nourishment as if it had been mixed with the whole soil. This method also combines the advantages of a dry bed and early planting, both of which are so essential to obtaining a fine and general bloom, and which cannot ordinarily be obtained except in such situations as are so very dry as to be unfit for the *Ranunculus*. The temperature of the earth in which they are planted being considerably higher than that of the open ground, from having been kept sheltered and dry, germination will sooner take place, and the risk of injury from frost be also considerably diminished. Nor is the trouble attending this method

more in the end than that encountered in the ordinary way; being partially renewed every year, the bed will never require to be wholly changed, as is usual, every few years.

FLORICULTURAL REMINISCENCES.

BY T. RUTGER, ESQ., DEVONPORT.

IN a former number of the *Cabinet* (see November, 1855) I adverted to the improvements which have been made and which are still making in the culture of flowers. The *Cabinet* from its commencement having been principally devoted to this subject, a fund of information has been given to its subscribers, and as most of the articles supplied have been intended for practical purposes, they must have proved of great service to the amateur floriculturist. The subject being inexhaustible, and the science of culture still in progress, we may expect to be favoured with the results of the success which many of its contributors may realize, by experimenting skilfully, in various ways, to bring to perfection such among the numerous varieties of flowers which now present themselves, and which by cultivation may be brought to greater perfection.

I have been looking through the *Cabinet*, which has now been above twenty-three years in existence. At its commencement I thought it attractive, and that it would, if it lived, be of great use to the floriculturist, which it doubtless has been, and its utility will continue while it is supported by contributors such as it has been favoured with, and while we have the pleasure of reading monthly something new in the progress of floriculture. It is satisfactory to see that the *Cabinet* has also made a corresponding improvement since its commencement, and particularly as regards the plates; I have now before me the first and last volumes, and the improvement in this department of the work is highly gratifying.

It is now some forty years since that some of the Cape bulbs attracted my attention; at that time the *Ixias*, *Babianas*, *Gladioluses*, and others, were mostly grown in peat, with several bulbs crammed into a pot, where they always had the appearance of starvation, rather than of free growth. I thought I would try what a more generous soil would do for them, and accordingly gave them a mixture of good sandy loam, with a portion of well-rotted dung and leaf-mould, and by only placing a single bulb of the strong-growing *Gladiolus* in a good-sized pot, and about three in a pot of the *Ixias*, *Babianas*, etc. By this mode of culture I succeeded in growing them to perfection. Some of the *Gladioluses*, between two and three feet high with spikes of flowers in proportion, were splendid; the *Ixias*, etc., also were healthy, and flowered in great perfection. So much did I admire them, that I solicited a friend of mine, an artist, to favour me with portraits of such as were most admired among them, which he cheerfully complied with.

If we turn our attention to the Cacti tribe, it will be remembered by many that only lime-rubbish was allowed for their culture; whereas now, by giving them a more generous soil, some of them exhibit a splendour in their flowers which was not even dreamt of at the era above alluded to. In order to try the effect of an entire freedom for the roots, a plant of the *Cactus speciosa* (now named *Epiphyllum speciosa*), worked on the *Cactus Pereskia* (now named *Pereskia aculeata*), was planted in a narrow border that was boarded off along the sides of a pit of a plant-house—the stock upon which it was worked was between two and three feet high; the progress it made was astonishing, as, in the course of three years, it formed a complete umbel from its summit to the ground, measuring about two feet in diameter, and in the flowering season formed one of the most splendid appearances that could be conceived, having a profusion of flowers, completely full, all round its circumference, and down to the soil on which it grew, which was a sandy loam mixed with leaf-mould.

During my minority I became attached to the family of Geraniums, or Pelargoniums, but having no greenhouse in which to house them during winter, I availed myself of two three-light frames; these being well guarded with coverings in frosty weather, I succeeded admirably in preserving them throughout the winter. In order to keep up my stock, and to add to it as many varieties as possible, being within a two hours' walk from Stourhead, the seat of Sir Richard Hoare, Bart., I paid it a visit once a year, when the gardener kindly furnished me with cuttings of the different kinds he could spare. I notice this to bring to recollection that the Sir Richard Hoare then living was an admirer of the Pelargonium tribe, and was among the first who obtained varieties by hybridizing; a variety of his raising, then much admired, went by his name for several years. A stimulus having been thus given, we now witness the result in the amazing number of varieties that have been obtained, and which are still on the increase, arriving at a perfection but little conceived of at the commencement, when endeavouring to obtain varieties; the same may be said of the Dahlia and Pansy, with others that are brought to perfection beyond the most sanguine expectations.

There was a period when some propagators were rather tardy in allowing their secrets to be known. I recollect the time when raising almost all kinds of evergreens from cuttings was considered a secret, and it was only through an act of courtesy that on one occasion I was admitted into one of the secluded compartments where the business of propagating was carried on, and which was then called the *Sanctum Sanctorum* for the propagating of evergreens. That which was then considered a secret has long ere this, no doubt, been brought to light, namely, by small cuttings being put under hand-glasses about the latter end of August or the beginning of September, on a shady border, in a light mixture of peat and sandy loam, where the following spring and summer they will have taken root. It will also be remembered by many, no doubt, how closely the secret was endeavoured to be kept, at a certain nursery, for propa-

gating the *Camellia* by inarching, etc., when a celebrated propagator was engaged from the Continent for the purpose. Now, there are peculiar cases in which it is natural to suppose that where there is a chance of getting a stock of some new or scarce and valuable plant, so that a hundred or more pounds may be realized by keeping the propagation of it a secret, it is what every one will do, and is not open to censure; but it is satisfactory to the lovers of floriculture, that in our day there is a liberal disposition exemplified by many to give publicity to what they have achieved in the art, and this is fully corroborated by the numerous contributors to the *Cabinet*, which I trust will sustain its celebrity, so as to ensure success for many years to come.

While on this subject, it may not be amiss to advert to the numerous varieties of plants and flowers which have been introduced from foreign climes of late years, through collectors being sent out by different enterprising nurserymen. Perhaps, among the various productions which have been received from abroad, the *Victoria Regia* may claim a first-rate position, and among the Orchids, there have been many rare productions brought under our notice. May we not expect that, through the indefatigable exertions made by individuals in exploring regions yet unvisited, a vast accession may still be made, of enhanced interest and value, to the number of species and varieties already introduced?

NOTES ON THE BOTANY OF THE MONTH.

BY MR. EDWARD SHEPPARD, BURY.

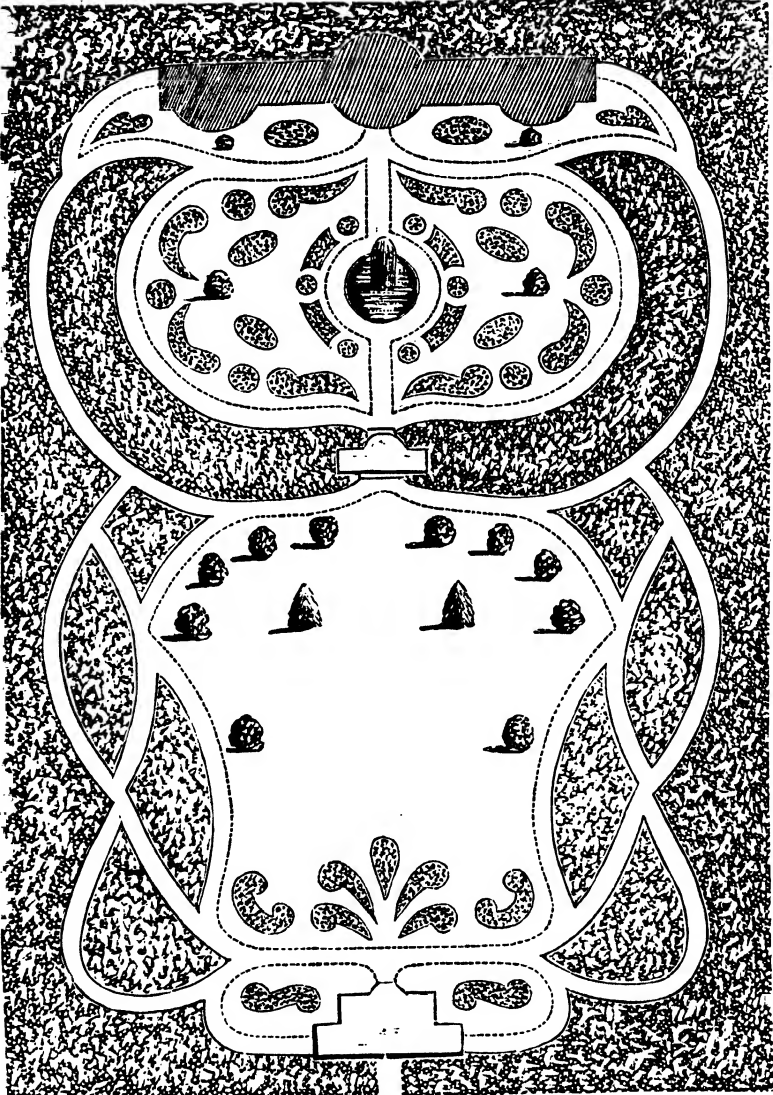
TOWARDS the close of this month the pretty purple or lilac flowers of the Saffron Crocus, *Crocus sativus*, make their appearance, cheering us at a time when the majority of bulbous or corm-rooted plants are out of flower, reminding us of their earlier sisters, the promise of a coming spring:

"The bulb that slumbered in the ground,
Hath felt a quickening change,
And wakes, with bright apparel crowned,
As beautiful as strange."

The Saffron is supposed to have come originally from the East, but is now so common in Europe, that it is difficult to ascertain with certainty its native country. It is commonly reported that Sir Thomas Smith was the first who introduced it to England, in the reign of Edward the Third, and that it was first planted at Walden, in Essex, where it increased so rapidly as to confer a name to the place, still called Saffron Walden. There are even now some fields in the neighbourhood where it grows plentifully. The stigmas of this plant are cut away and dried, forming the article so much employed as a dye. In the southern and eastern districts, where chalk abounds, we may see abundance of the *Olema vitalba* in bloom in the hedges,

DESIGN FOR THE FLOWER GARDEN AND GROUND OF A VILLA RESIDENCE.

BY T. RUTGER, ESQ.



0 10 ft.

IN the accompanying design for a small villa residence, the ground comprises, according to the scale, something less than an acre and a half, in which is delineated the house, with its open lawn and shrubbery, the summer-house, flower-garden, and conservatory. The object aimed at in this design is to give as much length in walks as the limits of the ground will admit, as well as diversity in making them attractive, which may be done by judicious planting, and hiding them as much as possible from each other; where they do not come in contact with the grass, there should be grass verges. The summer-house, which is nearly in the centre of the ground, by being raised a step or two above the level of the walks, and having glass doors at each front, permits a view from it being obtained over both the lawn and the flower-garden. Along the boundary on each side, a few select trees may be planted, so as to shade the walks contiguous thereto, which is desirable during the summer.

ON GROWING THE BALSAM.

BY MR. THOMAS JOHNSON, UXBRIDGE.

SEED may be sown from March to the first week in May, in pots or shallow pans, using a compost of rich loam. The seed-pots may be placed in a hotbed, until the plants attain three or four pairs of leaves; then shift them into sixty-sized pots, using three-fourths of yellow maiden loam and one-fourth well-rotted dung, this will be found an excellent compost for them throughout the whole routine of shifting the plants. Set them in a frame or pit by themselves, supplying a gentle bottom heat. I think it will be found that bark beds, having walls made of dung, supported by stakes driven firmly into the ground, are always preferable to dung alone, as the warmth is more regular, and the heat more lasting.

The great point to be aimed at in this plant is to get them bushy, branching from the ground; two inches of bare stem is quite enough, as the plants then present a very handsome appearance. If the plants flag at all after their first shifting, shade them for a few hours in the middle of the day, for a few days; after this take off the lights from nine in the morning till four in the afternoon, when they should be attended to with water, to be given freely over head with a rose, and then shut the lights. They will require shifting, every ten days or a fortnight, into pots a size larger than before. The pots must then be replunged in the bark bed, which should be previously forked over, to keep up the temperature. This may be done every time the plants are moved. They may be either set on the bark, or plunged into it, according to the heat: should the temperature be too high, the former course should be pursued; if, however, it be gentle, plunge

the pots up to the rim. As the plants grow and increase in height, it will be advisable to raise the frame with bricks at the corners, which will also allow a free circulation of air, and prevent their being too much drawn up. When they are intended to flower, it is best to remove them to the greenhouse, where they may be kept rather warm until the flowers begin to expand; if they are kept cool, and regularly shaded in the middle of the day, it will be found greatly to prolong their time of flowering.

In growing Balsams for windows, sow the seed from the middle of March to the end of April, in a shallow pan or pot. Cover the top of the pot with a sheet of glass until the plants come up; they should be kept inside until the plants attain about three inches high, when they may be potted off into sixty-sized pots. Set them out of doors from nine in the morning till four or five in the afternoon, regularly taking them in-doors at that time. As soon as the roots begin to coil round the sides of the pot shift them. This will be found necessary about once in three weeks; continue this treatment, and turn the pots round daily. I have seen plants which have been managed in this way bloom far superior to many which have been cultivated in the frame and greenhouse; for it is much better to cultivate them altogether in the open ground, than exposing them to such an extreme heat as they are too often in such cases subjected to, when the result is, plants drawn up, weakly, and with a poor show of flowers. When placed in a balcony to flower, they should be placed in double pots, the interstices between the two being filled with moss, which will tend to check dryness of the roots. Balsam seed should always be used fresh, as it will not keep good above a year. Cuttings may be propagated if struck in pure sand, plunged in a gentle bottom heat, and covered with a bell-glass.

ON THE TREATMENT OF CAPE IRIDACEÆ.

BY C. B. S.

THE following account of my method of treating this interesting natural order of plants is a condensation of the results of my experience in cultivating them for several years; and although I have seen beds of some of the more hardy varieties of *Sparaxis* bloom well in the open air in my district, the West of England, yet I have always found far better success from pursuing the following system, and I am persuaded that the delicate beauty of the flowers of this order is much enhanced when, being grown in pots, they can be removed to the greenhouse. I examine the bulbs in October, potting the larger ones, separated from their offsets, in a compost made of sand and fresh light turfy loam, with free drainage; I have found, with regard to the more vigorous-growing *Gladioli*, that a sprinkling of well-decomposed cow-dung over the drainage conduces much to the

strength of the plants. At the same time I prepare a bed of old dry tan mixed with some fresh stable manure, at least two feet in thickness above the level of the ground, and place on the top a large frame; within this I plunge the pots in the old tan, the stronger and taller growing *Gladioli* at the back, *Tritonias*, *Sparaxises*, *Ixias*, *Babianas*, etc., arranged in due gradation in front, down to the dwarf *Oxalises* and *Lachenalias*. At night I put on the lights, and in fine weather give abundance of air. I withhold water until the bulbs have made roots, and the leaves begin to put forth, it is then given with judgment, when there is no frost to avoid exhausting the bulbs by drought. If severe weather occurs, I bank the frame round with old tan assisted by hot dung, protecting the lights by a good external covering of straw or fern. With this management the various sorts of *Sparaxis* will begin to show bloom by the end of April, and being then removed to the greenhouse, open their flowers to the sun with great brilliancy. These are succeeded by the *Ixias* and *Babianas*, which may be removed to the front of the house. The *Gladioli* generally outgrow the height of the frame, and throw up their flower-stalks vigorously on the greenhouse stage. Lastly, the *Tritonias* form a fine show, in shades of orange, pink, and copper colour. When the blooms are past I continue to water the pots, in order to perfect the foliage, and form the bulbs for the ensuing season; by replacing them in the frame, and giving them full exposure to the sun until the leaves gradually die away, the bulbs become thoroughly ripened. They are ready for repotting the following October, after a period of rest. The natural order *Iridaceæ* is very extensive, and of Cape species, I know none which will not be found to bloom in perfection under my plan of treatment, which I have endeavoured to make intelligible to your readers, and shall be gratified if I succeed in eliciting any communications through your medium on my favourite tribe.

A FEW WORDS ON THE GEOGRAPHICAL DISTRIBUTION OF PLANTS.

BY G. F.

THE distribution of plants over the surface of the globe is a very interesting subject, and one which has never been very fully illustrated—indeed, volumes might be written without exhausting it. The most we are at present able to do is briefly to notice a few general characteristics of the vegetable productions of distant places. Over the entire surface there is a great diversity, and very peculiar floras—we may say that every village has its particular plants, and that those of one situation are not those of another. As a general fact, it is admitted that a high temperature is most favourable to vegetation. Hence, in the tropical regions plants luxuriate, and species

abound more majestic in character than those in temperate and cool latitudes. It is nothing rare for the tropical trees to attain a height of one hundred and fifty or two hundred feet, and the very Grasses, which with us are generally small and insignificant, are there of gigantic habit. The Bamboos and Canes grow to an astonishing magnitude. The Palms, a tribe wholly unknown as natives of our countries, claim the tropics as their own. To these regions we are indebted for all those plants which have a spicy and aromatic flavour. These favoured climes give birth to a thousand elegant climbers, and myriads of parasitic plants of beauty and brilliancy, to which other countries rear no equals. Even the very trees of the forest are ever-green, and covered, in their season, with large, handsome, and often very fragrant flowers. When we cultivate most of these plants in our conservatories and stoves, they are far from equalling the size which they attain in their native jungles and woods. Yet indiscriminate praise is scarcely just even here. The tropical fruits are too sweet and luscious, and the majority of them far inferior in grateful flavour to those cultivated in our own country. There is neither the wheat to gild the fields, nor vines to yield the grape. Their plants are magnificent, varied, and stupendous; but they have nothing of that concentrated beauty, innocence, and charm which appertains to those of our hedgerows and flowering knolls.

To the southward of the tropics and in the extensive continent of Australia we find the vegetation curious, but scarcely to be called handsome. The leaves of the shrubs are mostly harsh, hard, and dry; their flowers peculiar, but their fruit of no value. Here the various tribes of *Mimosa*, *Protæa*, and *Banksia* are extremely prevalent, the *Lily* tribe equally rare; while in the southern parts of Africa, under the same latitude, the *Irideæ*, *Amarylloideæ*, and *Liliaceæ* hold extensive sway. The districts of the Cape of Good Hope may be said to be the richest botanic garden of the world; not only the *Monocotyledonous* plants before mentioned, but other classes are there to be found in almost endless variety. Of the elegant family of *Ericas*, or *Heaths*, we have more than 350 species introduced from thence. *Stapelias* and other succulent genera abound in the sandy deserts; beautiful members of the *Geranium* family and of the *Mesembryanthemum* nestle undisturbed on every bank, or climb, unheeded, over every thicket; yet the "Queen of Flowers," the *Rose*, is absent from this part of the southern hemisphere. The islands of the South Sea have their peculiar produce also, and perhaps few more extensive or more inviting fields are open to the botanist than this. The *Bread-fruit*, the *Banana*, and *Papaw-tree*, many of the *Myrtle* and *Nettle* tribe, and gigantic *Reeds* abound inland; the *Cocoa-nut* fringes the shores, while the *Yam* creeps along the sandy beach. If we pass to the north of the equatorial regions, and direct our attention first to China and Japan, we find, as well as in Central Asia, that generally so little of their riches is known it were almost in vain to attempt

a description of their productions; though in respect to China and Japan, the exquisitely beautiful *Camellia*—some species of which afford the Tea of commerce—the *Hydrangea*, *Wiegela*, *Pæonias*, *Dielytra spectabilis*, *Pyrus japonica*, *Salisburia adiantoides*, and that common and favourite shrub *Acuba japonica*, all of which are now common in our gardens, serve to show the botanical riches we might expect to find were these countries well explored. China, too, is supposed to have been the original country of the Sugar-cane, Rice, and Oranges. Persia is by no means rich in botanical produce, yet it yields the Rose in endless variety; the Jasmine forms their hedges, the Fig, the Pistacia Nut, the Apple, and Peach compose their forests, while Melons of much luxuriance are cultivated in the fields. The northern parts of Africa partake of the general character of tropical vegetation. In the low, damp districts grow the Date, the Banana, and many other Palms; while in the deserts nought but succulent Aloes, the grotesque Cactus, the Euphorbia, and other similar plants, are able to survive the long and severe drought to which they are exposed. In Europe, the southern parts are rich and varied in valuable and handsome plants. Greece is a place of flowers, as of song; Italy is styled “the Garden of Europe;” the Levant and Mediterranean Islands yield to no country in the beauty and variety of their plants; France, Spain, and Portugal have each their own productions. In Prussia, Northern Germany, Northern Russia, Sweden, and Norway immense forests of Larch, Pine, and Fir trees crown every steep and rugged mountain-side, and Junipers and Cloudberries are scattered over moor and hill.

The number and character of species are materially diminished by a few additional degrees of latitude. In Lapland we no longer meet with smiling fields and hedgerows green; a dreary waste, with now and then a stunted misshapen Pine, a dwarf Birch, a few scattered Grasses, and occasionally a little flower, more hardy than the rest, are all the flowering plants that relieve the monotony of the scene. These little plants are such as are known as Alpine, and include Primroses, Saxifragas, Androsace, Aretia, etc.

In the New World the same general laws are in action, though the vegetables are different from those of the Old. The flora of Spitzbergen is as scanty as that of Lapland. Canada and the northern States of the Union give rise to immense forests of the Coniferae, while the under-growth is composed of Bilberries; no Heaths, however, attend them, as with us.

The middle and southern States abound with an infinite variety of Oaks, the Tulip-tree, and the fragrant Magnolia. Mexico, Chili, Peru, and the West Indies, with countries of corresponding latitude, are tropical in produce, Brazil scarcely less so; while in the extreme country of Patagonia, the few scattered Coniferae appertaining to such cold latitudes are again discoverable. Thus a regular gradation in the character of the plants is plainly discernible from the equator to the poles. There is also an equal gradation in the number of

species: at 80° north, the number is about 30; at 70°, in Lapland, there are 534; in Sweden 1300, at 60°; 2000 at 52°; 2800 at 45°, in Piedmont; 4000 at 20°, the latitude of Jamaica; and more than 5000 species in 15°. In rising above the level of the sea, vegetation suffers modifications analogous to those we observe in advancing from the equator to the poles. These phenomena are strongly marked, and rapidly succeed each other on the sides of mountains. A height of 12,000 or 15,000 feet in the hottest countries produces changes as strongly marked as the distance of the 2000 leagues which separates the equinoctial line from the hyperborean regions. Tournefort observed, at the foot of Mount Ararat, the plants of Armenia, a little higher those of Italy and France, still higher those of Sweden and Norway. Similar observations have been made on other mountains.

The Oak grows on plains nearly level with the sea; it ascends the sides of mountains until it reaches the height of 5000 to 6000 feet, and its vegetation is much less majestic as it approaches these heights, where it ceases to grow. The Beech only appears at an elevation of 1800 feet, and finishes its course 600 feet below the Oak. The Yew-tree is seen at 4200, reaching as far as 6000 feet, and the Scotch Fir establishes itself between 6000 and 7000 feet. The growth of these trees being arrested, shrubs, with dry leaves, low, and sometimes creeping stems, which remain concealed among the snow in the winter, begin to show themselves. Such are the Rhododendrons, Mezercons, some species of Willow, the Dwarf Birch, and the Juniper. After these we may meet with small plants, having perennial roots, leaves in the form of a rosette, and with naked flower-stalks. We first perceive varieties of the Gentians, Primulas, *Saxifraga longifolia*, *aizoon*, etc., then *Ranunculus alpestris*, *nivalis*, *parnassifolius*, *Aretia alpina*, and at last the *Ranunculus glacialis*, *Saxifraga cæspitosa*, *oppositifolia*, *androsacea*, and *Grænländica*. These last-mentioned plants, mixed with various of the Lichens and Funguses, attain an altitude of 10,000 feet, and are bounded only by the limit of perpetual snow.

Temperature, soil, exposure, and degree of humidity all exert their influence, and modify the natural productions of a district; one species greets us here, another there; one smiles from a cliff, another blushes from the stream; one, as if conscious of its beauty, offers itself boldly to our view, another, like the Violet and the Lily of the Valley, seems to hide itself only that it may be sought for; yet when found, how large a share of fragrance doth it yield, and what simple loveliness of aspect and perfection of organization does it not disclose.

“ There’s not a heath, however rude,
But hath some little flower,
To brighten up its solitude,
And scent the evening hour.”

ON THE PROPAGATION AND MANAGEMENT OF ACACIAS.

BY A NOBLEMAN'S GARDENER.

SCARCELY any genus of flowering plants contains so great a number of species as *Acacia*; many of great beauty, and varied attraction of form and habit, but of little diversity of colour, being mostly of divers shades of yellow. This genus comprises both stove and greenhouse species; it is my intention to offer a few remarks on those whose cultivation is simple and within the reach of most persons possessing a greenhouse or conservatory; these are mostly evergreens, deserving a place wherever they can be grown, and form in many cases very splendid specimens.

In propagating the *Acacia* by cuttings, they should be made when the plant is in a dormant state, before the growth commences, and will be found to strike freely; let them be cut to a joint, and strip off the leaves about an inch from the lower extremity. Insert them about an inch deep, round a wide pot, in a mixture of loam, peat, and sand; place a bell-glass over them, pressing it down somewhat to exclude air, having previously given a gentle watering. Plunge the pots in a warm frame or gentle hotbed, and shade from sun. Let the glasses be taken off and wiped each morning, to prevent damping off, and do not allow the soil to become quite dry, or they will speedily fail. As soon as the cuttings have struck, and show signs of growth, fill sixty-sized pots with a compost of turfy peat, broken small, one-half, sand one-fourth, and loam one-fourth, with a slight admixture of well-decayed stable manure. In this pot off the cuttings; water them and place them in a shaded corner of the greenhouse, until they sufficiently establish themselves. If it be desired to make dwarf, bushy plants, pinch them in; but it is best to allow them free growth, which shows to advantage the diversity of habit and foliage which is so prevalent in this pretty tribe. With respect to shifting, this should be done when the plants begin to make a ball of roots around the pot, when they should be transferred to a size larger. It is of importance to have the pots well drained, one-third full of broken crocks is not too much; cover with sufficient of the foregoing compost to allow the surface of the ball to come nearly to a level with the top of the pot, filling up the sides and pressing it round the roots gently, so as to avoid breaking the fine fibres. Shade for a day or two, when they should be transferred to a cool frame, where they may be left to grow, occasionally attending to watering, until the time arrives for placing them in their winter quarters in the greenhouse. The third season they will progress well, and assume a finished appearance, and will require after this but a little attention to shifting properly and watering; the former is best done when the plants are dormant, and manure may be omitted from the compost altogether. Most kinds flower in

early spring, and after blooming should be set out, or plenty of air admitted to the house. If set out of doors, place the pots on tiles, that the roots may not strike through into the soil; and screen them from high winds and too much wet—a shady situation is best for them. When the plants become large, they will need shifting but every other year; at which time, if the roots are found in too great a mass, it is well carefully to prune them, as also to thin out the plant. Attention should be continued to watering, as those with much root will soon flag if it be withheld. Those who can command sufficient space may, as the plants increase in size, transfer them to tubs and large boxes, where well-grown specimens, covered with their delicate blossoms, are among the prettiest objects which the conservatory admits of.

ON THE GARDEN ANEMONE, WITH REMARKS ON ITS CULTURE.

BY MR. A. LAING, SETTLE.

My garden has been an attractive object for nearly twenty years, through my fondness for this flower, of which I grow a very considerable number, and for grounds which are limited in dimensions they are very well adapted for making a show in the spring months. I am induced to send you a short account of my treatment of this old-established favourite, the culture of which is so easy, that I am quite surprised it is not more generally grown; many of the double kinds are very handsome. My practice is this: about the last fortnight in September, I take out the natural soil of the bed to the depth of eighteen inches, in the bottom place a layer of cow-dung, three or four inches thick, and then fill up the bed, to within an inch and a half of the surface, with the following compost:—Take of thoroughly rotted cow or horse dung, leaf-mould, and heavy loam, of each six barrowfuls; white pit sand, two barrowfuls,—which mix well together. Let the bed lay to settle till the middle of October; when having raked over the surface, the tubers may be planted upon it, in six rows, six inches apart from root to root: this distance is absolutely necessary, to allow room for their fine flowers to expand and show themselves. Cover each tuber with a little white sand, and fill the bed level with the surface with light sandy loam; compact the surface with the back of the spade. I protect them from heavy rains, or severe frost, by straw mats, supported from the surface of the bed by a wooden frame, made like the roof of a house; but do not continue this covering except when absolutely necessary, as nothing is so hurtful to them as confined air. Shade them with an awning from sun and rain when in full bloom, and give them rain-water every other day, poured between the rows. As soon as the bloom is over, cease to give water, and admit all the sun possible, but not a drop of rain—as the quicker vegetation is destroyed, the better will be the bloom next season. Take up the roots as soon as the foliage dies down.

They will answer nearly as well grown in thirty-two-sized pots, using the same compost, and plunging the pots in cinders. By following the above plan I am amply repaid for the little trouble they require by an abundance of dazzling blooms.

ON THE POT-CULTURE OF PANSIES.

BY K. B.

I HAVE been a grower of Pansies for many years, and my practice has been very successful; my favourite plan is to grow them in pots, yet I by no means disapprove of cultivating them in the open border, although I believe that by pot-culture we succeed in obtaining equally fine flowers, combined with greater perfection of form than we do when the former method is pursued. If acceptable to your readers, I shall feel a pleasure in having the following brief remarks on my treatment inserted in the next number of the *Cabinet*.

I commence with small plants having short stout stems, and use small pots. They require the same rich kind of soil or compost for pot-culture as they do in the open ground, but more frequent watering (except when in their inactive state in the winter season, then needing but a very moderate supply); which should be with liquid manure, or soapsuds, to be carefully poured into the pot without sprinkling any upon the foliage. Shift into larger pots as the plants advance in size, and see to frequent top-dressing with leaf-mould, well-rotted dung, or the ashes of burnt weeds, vegetables, or wood. The plants must be entirely defended from the powerful rays of the sun, but require the natural free air, dews, and rains, until the buds are near their full size and begin to expand, at which time the blooms should be defended from wet and winds. They require a free drainage at the bottom of the pot, which should be carefully attended to each time the plants are repotted.

REMARKS ON THE VARIOUS SOILS AND MANURES MADE USE OF BY THE FLORIST.

BY W. P., A PRACTICAL FLORIST.

SEEING the brief remarks on the composition of various soils used by us, I am induced to send the annexed for insertion in your useful Magazine, if thought worthy of a place.

Peat, loam, sand, manure of various descriptions, and decayed vegetable substances are the chief kinds used in floriculture; but very various are the mixtures and composts that may be obtained from them, by incorporating one with another in various proportions.

LOAMS are of various kinds, and go by different names; as stiff

loam, sandy loam, yellow loam, etc. These differences are caused by the loam being obtained from different pastures, and sometimes from being got from different depths. Yellow loam is the kind that I should recommend for floricultural purposes, owing to the openness of its nature, and the rich mellow qualities it possesses. It should be obtained from some neighbouring pasturage that has not been broken up for years.

PEAT, like loam, has different names according to its kinds, which are peat, sandy peat, and bog earth. Peat is that collected from commons, of a fine loose nature, but destitute of silvery sand. Sandy peat is that collected from where the *Calluna vulgaris* grows spontaneously, and which is plentifully supplied with the above sand; it is most congenial to the growth of tender exotics, with fine fibrous roots, as Ericas, Epacris, etc. Bog earth is that obtained either from below the others or from some moss, or uncultivated place; it may be distinguished from the above by the blackness of its colour and the closeness of its nature; it is sometimes found saturated with water. This kind, after being duly prepared, answers very well for what are commonly called bog plants, such as Rhododendrons, Azaleas, Kalmias, and Andromedas. MANURES are also of various kinds, as those produced from horses, cows, pigs, and fowls, and each has a different nature—as, for instance, dung from cows being the coldest, from pigs the hottest, and from fowls the richest; but I should recommend to horticulturists well-decomposed hotbed dung, made from the produce of the horse-stable, and at least two years old, which, in my opinion, will prove the best, as this kind of manure embraces none of the above extremes. VEGETABLE DECAYED SUBSTANCES are also various, as leaf-mould, rotten willow wood, wood ashes, and also the refuse of the vegetable or kitchen garden. SANDS are either found in beds, or on the sides of rivers; but the best kind for florists is what is generally termed drift sand, or sand washed by heavy showers into ridges.

Having thus briefly noticed the primary kinds of soils used in floriculture, it remains for me to state the preparations necessary before they can be used. The proper time for collecting the different kinds of soils and vegetable manures is unquestionably in autumn, after the beneficial rains and solar influence of the preceding summer, and that they may receive the requisite ameliorating quality of the forthcoming winter. In getting the various kinds required, care should be taken not to dig more than nine, or, at the furthest, twelve inches below the surface, as the soil lying lower is more concealed from the sun and atmosphere, and consequently not near so good. Let them be carted in fine fair weather, and thrown up in the compost ground in different heaps, placing the greensward of the loams on the top, with the roots uppermost, that they may the sooner decay. Thus let them remain till winter, when they should be at different times turned over, well chopping and mixing the sward with the soil. The dungs, decayed

vegetables, fallen leaves, and rotten wood may be treated in a similar manner:

It is customary with old cultivators to sift their composts before using. This is, in a great measure, the cause of exotics not succeeding, and appearing in health and vigour; for, by the process of screening, all the stringy and fibrous rooty part of the mould is lost, which is certainly the best part of it, as by its means the compost is kept open and free for the young roots to run in, and without this part the particles of the soil get close together, and often bake hard. Those who have practised this method think it impossible to improve, but one moment's reasoning with themselves will convince them they are in error. Manures, etc., must, of course, be coarsely screened, that the stones, pieces of wood, etc., may be extracted; but this operation must only be performed when the said kinds are wanted.

NOTES ON NEW AND SELECT PLANTS.

142. RHODODENDRON BLANDFORDIÆFLORUM. Nat. Ord. *Ericææ*.—Another among Dr. Hooker's valuable acquisitions from Sikkim-Himalaya, growing on those mountains at an elevation of from 10,000 to 12,000 feet. Its habit is not very attractive, being a rambling twiggy bush, attaining a height of about eight feet, not very well furnished with leaves; the flowers, however, are very striking, yet variable in colour, and not unfrequently in form. The plants which we have seen in bloom at Kew have flowers of medium size, the tube rather narrow, outside a fine orange-red; and inside, together with the mouth of the flower, orange-yellow; before expansion the blossoms are frequently green. The leaves are from two to three inches long, and coriaceous in vigorous plants. The wood of this species, when used for fuel, is said by the Nepalese to cause swelling and inflammation of the eyes, from its deleterious smoke. (*Bot. Mag.*, 4930.)

143. RHODENDRON CAMELLIÆFLORUM.—This species is an example of the great diversity in habit and appearance which exists in the Rhododendrons. The flowers are bluish colour, small, tube very short, and foliage narrow, of a dull green, the under surface as well as the branches covered with minute brown scales. It was first detected by Dr. Hooker in the Pine forests of Nepal and Sikkim, at an elevation of from 9000 to 12,000 feet above the sea. It has also been found in Bhotan. In the close forests it is generally epiphytal, growing on the limbs of tall trees, from whence its branches, which attain a length of six or eight feet, depend in the air. In situations where the trees are more open, it is found on the ground and on rocks. (*Bot. Mag.*, 4932.)

144. RIBES SUBEVSTITUM, Nat. Ord. *Grossulariææ*.—From California, discovered during Captain Beechey's voyage of discovery in the

Pacific, and now first introduced by Messrs. Veitch, through their indefatigable collector, Mr. Lobb. It is a *Ribes* of very distinct appearance and habit; the flowers are large, and somewhat resemble a small *Fuchsia*, the calyx is a deep purple colour, and the petals blush; the stems and branches are prickly, and the foliage very neat. (*Bot. Mag.*, 4931.)

145. *HETEROTROPA ASAROIDES*. Nat. Ord. *Aristolochiaceæ*.—A singular plant from Japan, introduced by Dr. Siebold. The flowers are globose, of thick fleshy substance, dark, dull purple or green. The leaves are spotted or mottled similar to those of *Cyclamen Europæum*. The root is a rhizome, resembling that of an *Asarum*. This plant has generally been confined to the greenhouse, but it is probable that it would bear the open air in our climate. The flowers are borne, in April and May, on short footstalks rising from the root. (*Bot. Mag.*, 4933.)

146. *AGAVE CELSII*. Nat. Ord. *Amaryllideæ*.—This species was introduced many years ago by M. Cels, of Paris. Its native country is unknown. It is thought to be probably Mexico. It bloomed, for the first time, at Kew in May and June this year. Its foliage resembles that of an *Aloe*, being of a pale glaucous green; each leaf is near two feet in length, the margin beset with short spines. The scape or flower-stem rises near four feet high, clothed with imbricated bracts, flowers pale green. (*Bot. Mag.*, 4934.)

147. *LISIMACHIA LINEARIFOLIA*. Nat. Ord. *Primulaceæ*.—This species was first discovered by the naturalists attached to Captain Beechey's expedition, when at the Loo Choo Islands. Mr. Fortune, however, found it in China, and sent it to Mr. Glendinning, of Chiswick. It is said to be quite hardy, and to form a pretty little herbaceous bush, of about two feet high. The stem is smooth, shining red, erect, and branched from the base. Innumerable white starry flowers crown the upper portion of the stem; each blossom is more than half an inch across, and, with the dark green leafy bracts, has a very pretty appearance. It has not been ascertained whether it is a perennial or not. It is, however, a decided acquisition to this tribe of herbaceous plants. (*Gard. Chron.*, 180.)

148. *CLEMATIS PATENS*, var. *HELENA*. Nat. Ord. *Ranunculaceæ*. This is the fourth variety of *Clematis patens* which has been, within a few years past, introduced from Japan by the illustrious Siebold, and noticed by us. The present variety is distinguished from others above referred to by its yellow stamens, combined with a white flower. The latter is large in size, often measuring about six inches across, and the white very clear. The whole four would form handsome ornaments for trellis-work, covered walks, and alcoves. (*Flore des Serres*, Tab. 1117.)

149 *NICOTIANA GLUTINOSA*. Nat. Ord. *Solaneæ*.—A native of Central America, introduced by M. Von Warscewicz to the garden of M. Van Houtte, where it flowered last autumn. The form of the corolla at once points this plant out as a distinct species, being very

wide in the mouth, the segments pointed, reflexed, colour of the tube peachy yellow, outside as well as inside, segments lilac-purple. The leaf is large and rough, covered with glutinous hairs, dull green, and the whole plant tall growing, and of singular habit. (*Flore des Serres*, Tab. 1121.)

QUESTIONS, ANSWERS, AND REMARKS.

GREENHOUSE PASSIFLORAS.—A. D. would feel obliged to any of the readers of the *Floricultural Cabinet* who will favour him with the names of all the Passifloras that succeed in a greenhouse, and the soil that suits them.

PLANTS SUITABLE FOR AN ENTRANCE HALL.—I should esteem it a favour if you or any of your correspondents would kindly inform me in an early number of your interesting Magazine, what plants are the most suitable for placing in an entrance hall (where they are exposed to draughts), so that I may have a succession of attractive flowers throughout the year.

PANSIES.—Also can you inform me how to prevent Pansies from degenerating in size, as mine have done, although side shoots were taken in the autumn, and carefully protected through the winter in a frame, and planted out in spring? My flowers are so small they are scarcely worth the trouble of culture.—*A Subscriber and Constant Reader.* [For Pansies refer to the article in the present number, by such treatment you will not have cause to lament their degenerating.—*Editor.*]

SHOW RANUNCULUSES.—The following fine varieties were exhibited by Mr. C. Tyso, florist, of Wallingford, at the Royal Botanic Society, Regent's Park, June 18, and at the Crystal Palace, Sydenham, June 25th and 26th. We learn from one who saw Mr. Tyso's unrivalled collection in bloom, that the beds were covered with a profusion of flowers of almost every tint. A rough estimate might set them at 30,000, and they presented, as a whole, a sight enchanting to any beholder, but especially as entered upon in detail by those initiated in floral pursuits. In the collections exhibited, we notice in the first place a few selfs. Of the dark red kinds, nothing exceeded in richness the well-known old continental variety Naxara or Nègre. We never saw this flower so nearly black as in the stand at Regent's Park. Alladius, a pleasing crimson, a little shaded in colour. Marquis of Hertford, a full large crimson, very handsome. Apollo is very like this, but the petals appear more curved. Costar's Apollo is a red-maroon, a full flower, not so smooth as the two former, but showy and useful. Eliza, a well-known, beautifully shaped straw colour; the specimens were very chaste, and finely grown. Sabina, a large pale yellow. California, an excellent-shaped yellow, sometimes slightly mottled. Victor, a good purple, with stiff petals. Melpomene, a fine red, with smooth even petals. Auriga, a useful purple. Sarpedon, a good red; an old Dutch variety. Wilsonia, a crimson-purple, useful, but petals rather indented. *Particoloured Varieties:* Commodore Napier (Lockhart), a sulphur ground, with brown edge, very nice shape before it is too far blown, and good size. Gomer, yellow, with dark strong edge, a good top-tier flower, though rather coarse. Exhibitor, yellow, with red mottle, high crown, smooth petals, and a first-class flower. Elegance, deep yellow ground, with bright red edging. Eliacine, white edged with bright purple, a full flower. Coronation, a fine creamy sulphur ground colour, with rosy red mottling, excellent shape. Fairy, delicate cream ground, with rosy purple spots. Archibald Johnson, yellow, finely edged with red. Beauté Mignonne, a compact useful red, with small yellow stripes. Mélange Mignonne, with broader gold stripes. Larne, white, with purple edging, full and good shape. Kilgour's Queen, large white, with delicate purple edging. Prince Albert, light yellow, with brown edge. Phrosine, cream, with crimson edge. Hon. Robert Wilson, clear white, with distinct crimson edge. Festus, yellow, with brown spots, large and full, good flower for back tier. Melancthon, creamy sulphur ground, laced with rosy purple, in some stages very fine. Liffey, white, with good purple edging. Indicator, deep yellow, with distinct dark brown spots, fine character.

Defoe, clear yellow, with faint spots. Suaviter, pale yellow, with red edge. John Waterston, white, purple edge, large and full. Several other flowers were fine this season, which are not usually found in a prize stand; among these we may name Burns (which was clean in the ground colour, and better in character than usual), Belle Agréable, Dr. Channing, and Vanguard.

PYROLA ROTUNDIFOLIA.—Abundant evidence was still visible of the ruin occasioned by the storm of the previous day, in the loose earth, broken fragments of rocks that were scattered around, and in the marks of terrible concussions that had taken place between the projecting rocks and the larger fragments in their descent, the point of contact being surrounded by a stratum of smoke-like dust, where the smell of fire was still apparent. I had penetrated to a considerable distance among the cliffs near the summit, at a place where one of the masses had descended, breaking off pieces of rock, and tearing up and grinding the vegetation in its progress. I had just pulled myself up and secured my footing on a green shelf, which had been partly torn from its moorings on the rock; on getting hold of the shelf above and raising myself upon it, my astonishment and delight may be better conceived than expressed, on perceiving the whole shelf covered with a dense mass of *Pyrola rotundifolia*, flowering profusely, and literally loading the air with its delightful fragrance. No one who has not witnessed such a scene can form an idea of the beauty of this lovely alpine gem; and the pleasure was no doubt considerably enhanced by the reflection that on this spot, perhaps, the foot of man had never stood, that no sacrilegious hand had ever culled these floral gems before.—*Hooker's Journal of Botany*.

VARIEGATED LEAVES.—Physiologists have contributed to strengthen the opinion that the variegation of leaves is the result of some disease in the plant, which presents that modification. It is not our intention to investigate whether the above opinion is well founded or not; but as some plants are all constantly variegated, and as others have on the same bough some leaves variegated and others not at all, we think the question naturally arises what conditions are necessary in order that the variegation of a plant may become permanent. Now, observations up to the present time have shown that when the edges of the leaves are variegated, or in other words, when the variegation is marginal, it is usually permanent, but when it is spread over the surface of the leaf, or if it takes the form of blotches, it is nearly always variable. The blotches may cover nearly the whole of the leaf, but they may likewise entirely disappear, as is the case with the Holly, Ivy, and Euonymus, when they grow luxuriantly. Only one plant, the *Aucuba japonica*, appears to be an exception to this general rule, and up to the present time the reason of this exception has not been discovered. If, on the other hand, we examine plants with marginal variegation, the law changes, and, under whatever condition they are, the variegation is permanent; for instance, to return to the Holly and Euonymus, of which we have just spoken, the *Euonymus japonicus*, var. *argenteus*, which has its leaves bordered with white, never varies—all its leaves remain variegated. In the variety of the same tree, the leaves of which, instead of being bordered, are blotched with white, the variation is considerable. The same holds true with regard to the common Holly; in the variety the leaves of which are bordered with white, we find very vigorous plants regularly variegated; in the blotched-leaved variety we meet with leaves the whole surface of which is yellow, others only partially marked with that colour; and lastly, whole branches may be seen on which not the slightest trace of variegation can be found. These variations must have a cause; but that cause is unknown, and it is to induce physiologists to endeavour to trace it out that I have written the above. If it be discovered, we may perhaps, at the same time, find the means of fixing the variegations; and the importance of this discovery to the decoration of gardens would be sufficient to induce some experiments being made with a view to the solution of the problem.—*Revue Horticole*.

TROPEOLUM TRICOLORUM.—There are not many plants which possess more real interest than this, as it continues in bloom for nearly the whole of the season. It may be successfully cultivated either in a greenhouse, pit, or even a window, if preserved from frost. The treatment I pursue is the following:—When the plants have done flowering, they are removed to the back of the greenhouse, or to any sheltered place most convenient, and are allowed to dry off gradually. When the stems have become completely

dried up, and break from the bulbs, the latter are carefully taken out of the pots in which they have flowered, wrapped in paper, and preserved in a drawer, until the time arrives for their being started again into growth; this will be about the middle of September, when they will have grown a few inches. I then pot them directly into the pots they are intended to flower in. For bulbs from four to five years old, I use eleven-inch pots, and smaller in proportion to their size. The soil which I find to suit them best is a mixture of equal parts of turfy loam and peat, with a portion of well-decomposed cow-dung, and a sufficiency of silver-sand to make the whole gritty. These materials should be well mixed together, and used in a rather rough state. In potting, I employ clean washed pots, and place about one inch and a half of broken crocks over the bottom, with a layer of moss, to keep the soil from mixing with the drainage. In filling the pots, I use the rougher portion of the soil first, and the finer as the pots become nearer full. This mode of proceeding secures perfect drainage, which is of the highest importance. My pots filled, and lightly pressed down, I insert my bulbs, leaving their crowns just below the surface; I then give a good watering with a fine-rosed pot, and keep them afterwards moderately damp; but I never allow water to stand in the pans, as they are impatient of much moisture at any time, except when in full flower, and then they require a rather plentiful supply. I always fix the trellis on the pot at the time of potting, as it saves the roots from being injured, as would happen if the operation was delayed to a future time. I carefully lay in the shoots as soon as they are produced, and fill every part of the trellis, which is brought over the front of the pot, to within four or five inches of its bottom. This gives them a neat appearance; and a month before they come into full bloom, I contrive to have the shoots equally distributed all over the trellis; for when this is the case, the beauty of the plant is very much enhanced. Nobody who loves flowers should be without this valuable little plant, the training of whose tiny shoots over the slender trellis that is destined to support them affords agreeable employment for many an otherwise profitless half hour; and then its curiously formed, lovely, red flowers, when once developed, create such a charming display, that any little care bestowed on it during its early growth is amply repaid.—*A Practical Man.*

BUDDING ROSES.—Among the many methods for budding Roses, I have found none answer so well as the following, which I have adopted for some time, and which I think should be more generally known. The bud for insertion is taken off the shoot very close to the eye; the tip or part of the bark below the bud is cut off quite close, to allow the bud to be pushed closer into the stock without being bruised. It then requires only to be tied above the bud, and a composition applied to exclude the air and keep the bud cool, consisting of two-thirds cow-dung, and one-third stiff loam. The bud requires no untying, and gradually grows so closely into the stock as hardly to be distinguished from a shoot, and is not so liable to be blown out or injured. The composition is applied in a liquid state with a small brush.—*JAMES SKIRVING, Downham.*

ON WINTERING VERBENAS.—The plan which I have for some time successfully adopted in keeping my Verbenas in small pots through the winter is the following. In the early part of July, I strike as many cuttings of the sorts desired for filling the beds next year, in three-inch pots. When they are filled with roots, which will be about the middle of August, I prepare a box for each sort, filling one-third of each box with broken crocks or cinders, and fill up with two parts of good rich loam, one of sand, and one of leaf-mould. I place the plants in this compost at equal distances, and peg down the shoots all over the box, where they soon strike root and form one mass. I then transfer them to a cool frame during winter, keeping off the lights except in frosty or very wet weather. As soon as spring approaches, they will make young shoots, which I strike in a gentle hotbed, in three-inch pots; these will be fit to put out in April, together with the plants in the boxes; the latter are best turned out by removing one of the sides of the box, planting the mass in the middle of the bed, which is at the same time filled up with the young plants from the three-inch pots. The strong plants from the box occupying the centre of the bed have the start of the others, and a fine effect is produced by very simple means.—*W. Stark.*

ON DATURA CERATOCALCULON.—The following is my method of managing this plant, a plan which I have followed for some years with success, and am assured the *Datura* is well deserving the notice of such as retain a border for mixed flowering plants by the

side of a favourite walk. One objection to the more general cultivation has been the supposed difficulty in getting the seeds to germinate; I have, however, obtained a sufficient supply by letting it shed its seeds upon the ground in the autumn, and afterwards digging them in. The following spring, when the weather set in warm, many of the seeds vegetated, and when the plants were sufficiently strong they were transplanted, with very little check. The seeds will lay in the ground and retain their vitality for several years; but I now would more particularly recommend them to be gathered as the seed-vessels burst. Let a flower-pot of sufficient depth and width be filled with garden soil to within four or five inches of the top, on which spread a thick layer of the seed; then fill the pot with the soil, place it in a cold frame, and protect it from frost. About the beginning of April stir the soil in the pot so that many of the seeds may be within one inch of the surface. Place the pot in the shade in a house or frame, where there is a moderate growing heat. If in a frame, plunge the pot in the soil, and water sparingly. If after a month or six weeks no plants appear, plunge the pot to the rim in the open ground, there to remain until late in the autumn, to be again taken up and put in a frame, and in the spring following the same process must be repeated. When the plants come up they should be potted and treated as other tender annuals are, until such time as the weather permits their being planted out. The peculiar suitability of this plant consists in a certain grotesqueness of stem and branches, together with fine large funnel-shaped whitish flowers, which expand late in the afternoon, thus giving variety and cheerfulness to the evening walk, whilst those plants whose gay-coloured flowers affect the sunlight are imperceptibly closing to repose.—*G. C.*

DESCRIPTIVE REMARKS ON A FEW SELECT *IXIAS*.—This beautiful and attractive genus has been much neglected in England since its introduction, about a century back. There is a lightness and elegance in their growth and habit, and a rich contrast in colouring, which few other genera afford. The brilliant orange of *Conica*, the crimson of *Crateroides*, and the sea-green of *Viridiflora*, are not surpassed in brilliancy of tint by the same colours in any other class of flowering plants. They require to be planted in autumn, and protected in winter; this care is amply repaid by their brilliancy and beauty during the blooming season, May and June. It is also necessary that they should be taken up every season, unless the situation in which they are planted be particularly dry, which prevents their roots from decaying. They also do well in pots; those varieties of dwarf habit and with large flowers being best suited for this purpose. Most of the following may be had at low prices from Mr. Bernard Saunders, St. Heliers, Jersey, who has one of the best collections of this and other allied tribes. *Aulica*, rosy yellow or salmon, two feet high, blooms early. *Capillaris*, lavender-rose, two feet, blooms late. *Conica*, brilliant orange, one foot, early. *Crateroides*, bright crimson. *Cuprea capitata*, copper colour, centre dark, large trusser, very free bloomer, and dwarf habit. *Cuprea exaltata*, copper colour, rather richer in tint than the last, taller, and very free blooming. *Erecta*, pure snow-white, erect and handsome. *Flexuosa*, pale lavender, a tall variety, blooming late. *Lilacina*, lilac, centre dark, a free flower, height eighteen inches, early. *Lilacina ramosa*, similar to the last, but later in blooming. *Lilacina Sarniensis*, lilac-purple, an abundant late bloomer, eighteen inches. *Linearis*, white, late. *Longiflora*, buff, dwarf habit, late. *Longiflora hybrida*, beautiful rosy white, an abundant late-blooming variety. *Longiflora purpurea*, purple, like the last in habit. *Maculata suprema*, buff, with large crimson centre, and crimson tips to each petal, a beautiful variety, free blooming, and large trusser. *Mutabilis*, white, changing to pink, with crimson centre. *Ochroleuca*, lemon colour, with darker centre, a large and good flower, late. *Purpurea campanulata*, a fine, large, purple flower, dwarf and remarkably showy, early. *Purpurea capitata*, purple, capitate, a free bloomer, eighteen inches high. *Racemosa*, lilac, with dark centre, late. *Rosea*, pretty, delicate rose, eighteen inches. *Rosea maculata*, rose, with dark centre, two feet high, very delicate and pretty. *Sanguinea*, golden yellow, with blood-red centre, very showy, dwarf, and late blooming. *Stellata*, tall habit, purple, late. *Sulphurea maculata*, bright yellow, with very dark centre, large flower, dwarf habit. *Tricolor capitata*, a pretty combination of white and yellow, with dark centre, and rosy outside of petals, very showy, and dwarf. *Viridescens*, pale green colour, a tall variety. *Viridiflora*, beautiful pea-green flowers, with black centre, tall and erect in habit, very showy and attractive, late blooming.—*W. B. P.*

FIG. 1

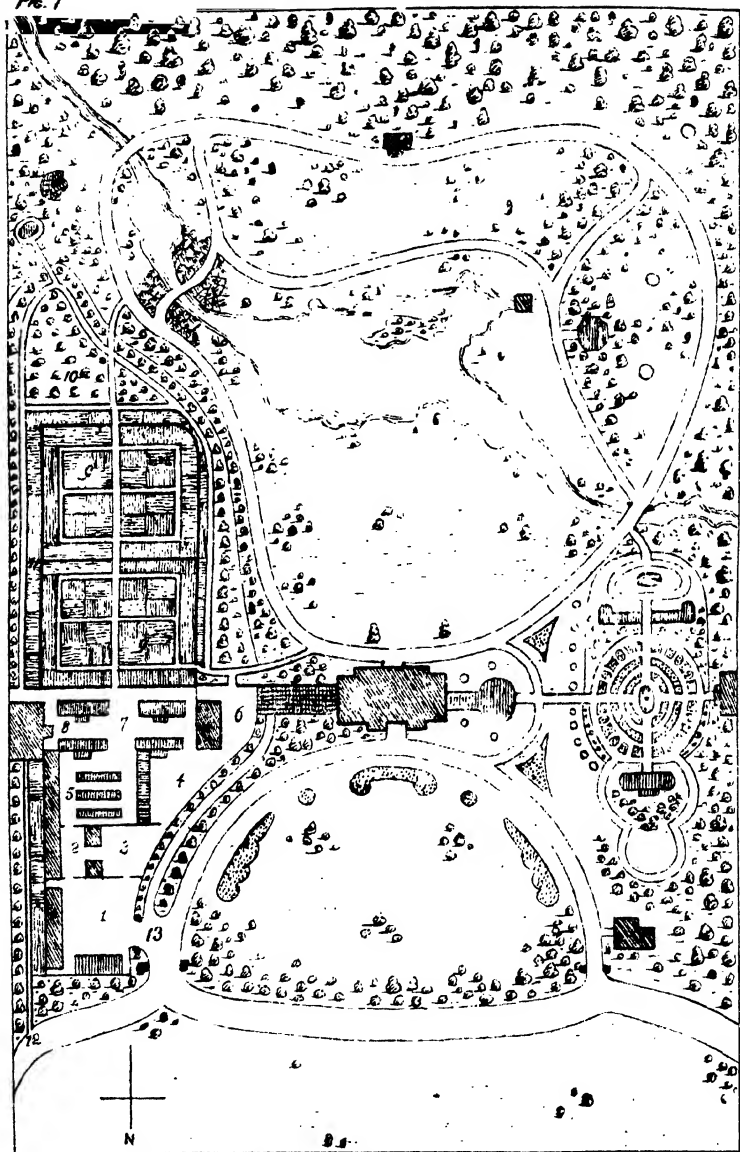
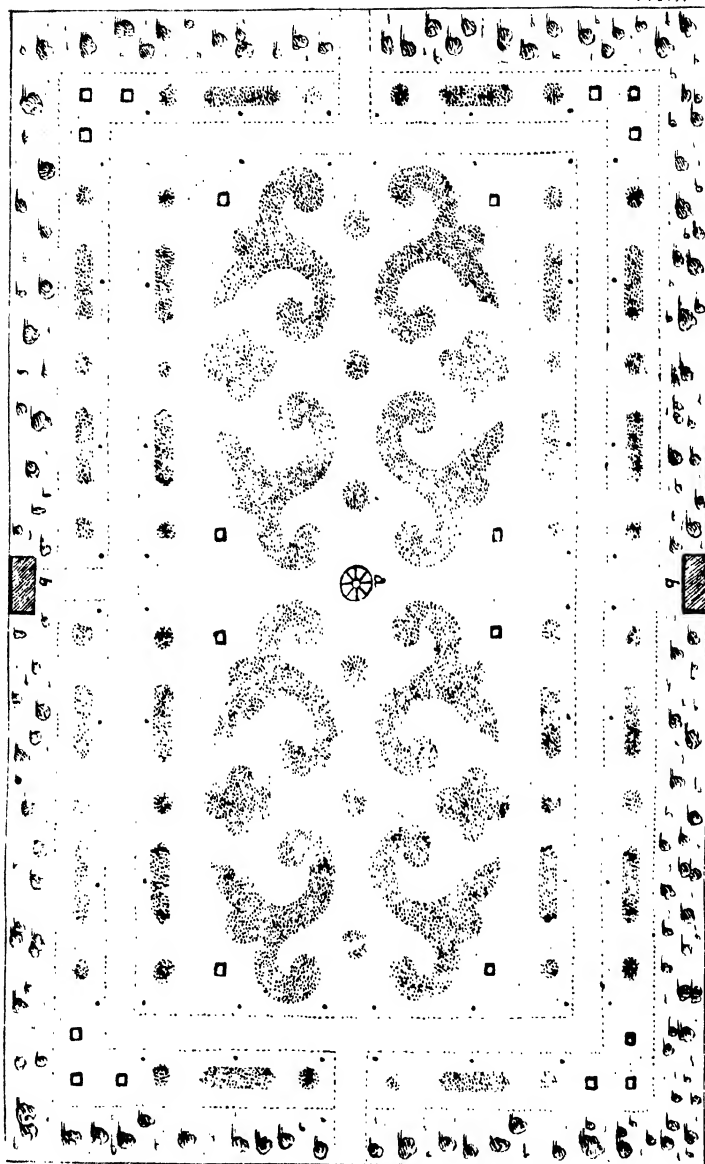
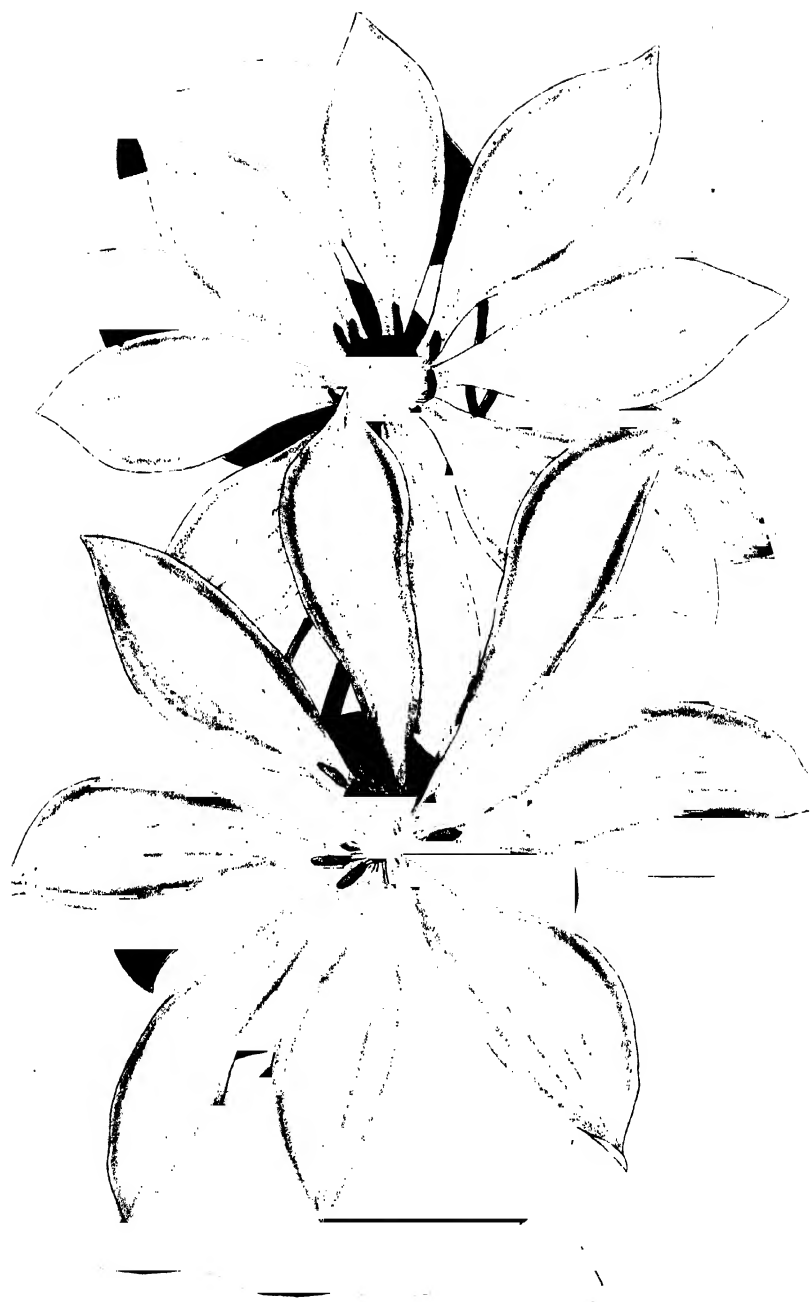


FIG. 11

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The Floricultural Cabinet.

OCTOBER, 1856.

ILLUSTRATIONS.

CLEMATIS PATENS, *var.* LOUISA, AMALIA.

ALL the Clematises introduced by Dr. Siebold, whether species or simple varieties, are showy and attractive, from the great size of their flowers, and consequently are desirable acquisitions to our gardens, being quite hardy, and of rapid growth. Of these, *C. patens*, *var. Sophia*, is remarkable for its delicate lilac blossoms; *C. patens*, *var. Amalia*, and *Louisa* (of which figures are given in our plate), are profuse-flowering varieties, the former primrose, with a purple centre, and the latter, pale lilac, with light-coloured stamens; *C. patens*, *var. Helena*, is pure white, and *C. lanuginosa*, light blue flowering, large. All are well adapted for trellises, or training over rustic work, and where a few distinct varieties, as the above, are grouped together, or trained to cover a verandah, they have a striking effect, and remind us of the lovely bowers described by the poet:

"o'erun
By vines, and boundless Clematis,
Amid a wilderness of leaves, where roses peep'd,
And honeysuckle, which, with trailing boughs,
Dropp'd o'er a sward, grateful as ever sprung
By sparkling fountains."

The Clematis flourishes when planted on a *dry* subsoil, in a mixture of peat and loam, and all the varieties may be freely increased by layering the shoots from July to October.

The generic name is from the Greek, *klema*, the climbing tendril of a vine, which this plant resembles in habit.

ON THE PROPAGATION AND CULTURE OF CALCEOLARIAS.

BY MR. W. LODGE, EPPING.

HAVING paid great attention to the cultivation of this class, I herewith forward some remarks on the method of treatment which I have pursued, so as to have plants, in pots, three feet in height,

covered with a profusion of their strikingly handsome flowers. As to the propagation of herbaceous Calceolarias, they are readily increased by division of offsets, which may generally be found rooted; in order to have plants to flower well the following year, they should be taken off early in August, planted in four-inch pots, and then placed in a cool frame, where they may be kept till the following spring, by preserving them from frost and being over damp. The half-shrubby and shrubby kinds are readily increased by slips, taken off close to the stems they proceed from. Where an opportunity occurs of keeping closely together plants to propagate from, and they are placed upon a damp floor, or in a damp situation, it has the effect speedily to induce the production of small roots at the lower parts of many of the shoots; these shoots being taken off and potted in small pots in August or September, make fine plants for vigorous bloom the following year. Though slips and cuttings destitute of these infant rootlets will strike if inserted in sandy peat and loam, and placed in gentle heat in a hotbed frame, yet I find the foregoing method much more certain, and much less trouble is occasioned. During autumn and winter my plants so placed afford me a numerous stock of rooted slips to take off, and I keep up my collection of young and handsome plants with little trouble, and am enabled to turn out into the open beds not only my old plants, but any desired quantity of young ones too.

Equal portions of turfy sandy peat, loam, leaf-mould, and well-rotted hotbed dung, well incorporated together for a few weeks before using, is the most suitable compost for growing the plants vigorously. I never have it sifted, but well chopped with the spade, when I use it for potting. A very free proportion of drainage is essential to their success, and I place in small pots one inch deep of broken potsherds, with one inch of moss upon them, the largest pots I give two inches deep of each, upon this substratum the soil is placed. The Calceolaria imbibes a considerable portion of water by the roots when it is in a healthy condition, to supply it with a fresh element of it is therefore necessary; if there be not a free drainage to allow superabundant water to pass, the soil becomes saturated and sour, which occasions sickness, and often the death of the plant.

About the middle of February I repot my young plants potted off in August and September, the most vigorous in pots one foot in diameter and ten inches deep. Weakly ones I put in pots half the size for a few weeks, and then repot them into the larger size, as the circumstances of growth require; I bloom my stock generally in pots of this size, but when I see a plant in such a sized pot that would bear a larger I remove it.

After potting I place the plants in a greenhouse upon a moveable stage, which is fixed so that the plants may be about a yard from the glass (the stage is raised or lowered as desired by the turning of a wheel rack, with notch to secure at each end of the stage); here I keep them till they bloom, giving them a free supply of air, to prevent

them growing up weakly. The surface-soil in the pots is frequently stirred, so as to allow water to pass through regularly, and evaporation to rise to the plants. The *Calceolaria* is more susceptible of injury by watering than most plants in general cultivation, so that, after all attention to draining, compost, and stirring the surface repeatedly, it is requisite to attend to a due order in giving a supply, which should be so regulated as to keep the soil moist, not wet. Previous to the plants blooming I frequently sprinkle them overhead with water early in the morning, this keeps the foliage clean on its upper side, and the damp arising to the under side keeps the plants free from the red spider, as well as promotes the rootlets. When in bloom I have a canvas cover over the roof of the house where the plants are, and by keeping them in-doors I have an opportunity of impregnating the flowers and of obtaining seeds. As soon as I gather the seed I have the plants placed out of doors, where they are shaded from the sun from eleven to three o'clock; they push again here and bloom for the greenhouse in October.

BRIEF REMARKS ON THE TREATMENT OF THE POLYANTHUS.

BY TH. T., AN AMATEUR.

A FEW remarks on the Polyanthus may prove useful as a reference for the young amateur (and doubtless there are many) who may be desirous of growing this attractive florist's flower. The situation most congenial to the Polyanthus is a raised border on the north side of a fence or hedge, which during the heats of summer serves as a shade, yet allows of sufficient sun in the morning. Early in the month of September, when the new leaves are two or three inches long, take up the plants, dress them, and plant them in the border, which is prepared turfy loam, rotten sheep's dung, leaf-soil, and a little of the decayed wood from the inside of an old willow tree, if it is to be had. This is a compost which suits better than any other which I have tried, and I have proved several. Water the plants just sufficiently to settle the soil about the roots, and if the weather should prove dry, attend to watering from time to time as they require it, being careful they are not allowed to become too dry. With this exception, they will require no farther care. I do not afford any protection in winter, and although I have a great number, I never have lost a plant from this cause. As soon as April comes in I take up such as have made the finest trusses of blooms, retaining as much soil with the roots as I can, and place them in good-sized pots, give a gentle supply of water, and remove them to a more shady situation to bloom them for exhibition. After exhibition I again turn them into the border. Throughout the following months, until the middle of August, I find it serviceable to guard the plants from the scorching effects of the sun, by sticking in a few branches along

the border, which otherwise would prove very injurious. If the weather be very dry they ought to be regularly well watered, or they will be liable to become infested with their great enemy the red spider, which is a destroyer of numbers every season. If this insect should be allowed to take possession of the plants, I find the best remedy to be a good syringing over and under the leaves with strong soapsuds; this is generally successful on the first application. Some prefer to grow the *Polyanthus* in pits or frames, but thus treated they require much more attention, and are more tender in habit; moreover, I do not find they increase so well under such a plan of treatment.

METROPOLITAN HOLLYHOCK AND DAHLIA. EXHIBITION.

THE above exhibition was held at Cremorne Gardens on the 19th and 20th August, at which there were shown one hundred and sixty spikes of Hollyhocks, all beautiful specimens closely set with blooms, many of extraordinary size and good form. The following were the principal exhibitors of this flower:—Messrs. Bircham and Ward sent *Solfaterre* (lemon yellow, fine), *Souvenir*, *Pourpre de Tyre* (rich dark purple), *Lemonade*, *Purple Perfection*, *Brennus* (mottled rose, large), *Seedling*, *Fireball Superb*, *Standard*, *Vesta*, and *Hon. Mrs. Ashley*. Mr. Chater sent *Lady Middleton*, *Walden Masterpiece*, *Saturn*, *Resplendens*, *Canary*, *Autocrat*, *Beauty of Walden* (the best variety shown), *Empress* (delicate primrose buff, one of the finest), *Géant des Batailles*, *Fanny*, and *Mont Blanc*. Messrs. Paul showed *Primrose Perfection*, *Memnon*, *Pourpre de Tyre*, *Narcissus*, *Mrs. Oakes*, *Hedenham Rival*, *Beauty of Cheshunt* (rose, extra fine), *Solfaterre*, *White Globe* (best white), *Glory* (rosy scarlet), and *Hon. Mrs. Ashley* (large, bright rosy pink). Nine spikes: the Rev. C. Fellowes showed *Solfaterre Improved* (best yellow spike), *Lilac Model* (best mottled), *Fireball Superb*, *Purpurea elegans* (finest purple), *Hon. Mrs. Ashley*, *Mrs. Oakes*, *Unique* (rich carmine), *Brennus*, and *Lemonade Improved*. Mr. Grant produced *King of Yellows*, *Eva* (light peach, fine), *Pourpre de Tyre*, *Beauty of Cheshunt*, *Souvenir*, *Solfaterre*, *Yellow Model*, *Seedling*, and *Hon. Mrs. Ashley*. H. Bowler, Esq., furnished *Atropurpurea*, *Hon. Mrs. Ashley*, *Unique*, *Joseph Clarke* (this was awarded a first-class certificate), *Mrs. H. Bowler*, *Lilac Model*, *Queen* (fine blush), *Solfaterre*, and a seedling. Fourth, Mr. C. J. Perry. In the class of 24 Blooms (Nurserymen), Mr. Chater and Messrs. Paul showed collections. Of these, the best were *Exquisite*, *Nil Desperandum*, *Sulphur Queen*, *Ceres*, *Atrosanguinea*, *Rosy Morn*, *Lilacina*, *Grandis*, *Masterpiece*, *Queen of Buffs*, *Ruby Queen*, *Canary*, *Purple King*, *Leonora*, *Lady Middleton*, *Lilac Queen*, *Beauty of Walden*, *Autocrat*, *Sceptre d'Or*,

Ignea, Walden Rival (orange and crimson shaded), Lord Jocelyn (cherry crimson), Pourpre de Tyre, Mrs. Oakes, Memnon, Purple Perfection, Mr. Adams (dark salmon, fine), White Globe, Beauty of Cheshunt, Eclipse, Hon. Mrs. Ashley, Blushing Bride, Solfaterre, Charles Baron Improved, Criterion (purple, slightly mottled), Rosy Morn, and Omar Pacha (pale straw and chocolate laced).

In the class of 24 Dahlias (Nurserymen), Mr. Charles Turner showed Sir John Franklin, Colonel Windham, Malvina, Captain Ingram, Incomparable, Sir F. Bathurst, Bessie, Lord Palmerston, Grand Sultan, Amazon, Rachel Rawlins, Harbinger, Sir C. Napier, Lord Bath, Eclipse, Espartero, Sir R. Whittington, and Duchess of Cambridge. Mr. H. Legge sent Admiral, Sir C. Napier, Crimson King, Amazon, Mr. Seldon, Duchess of Kent, Glenlyon, Beauty of the Grove, Mrs. Legge, Robert Bruce, Rachel Rawlins, Duke of Wellington, Magnet, Le Phare, Louisa, Glenlyon, Port Wine, Roundhead, and Jullien. Mr. Keynes exhibited Lord Palmerston, Lollipop, Sir F. Bathurst, Lady Folkestone, Cœur de Lion, Malvina, Sir J. Franklin, Rachel Rawlins, Dr. Gully, Bessie, Reginald, Archbishop of Canterbury, Admiral Dundas, Lord Bath, Sir C. Napier, Sebastopol, and Annie. In the class 24 Dahlias (Amateurs), Mr. Grant exhibited Miss Caroline, Pre-eminent, Lord Palmerston, Fanny Keynes, Malvina, Robert Bruce, Cossack, Amazon, Lady Mary Labouchere, Lilac King, Lord Bath, Yellow Beauty, Sir C. Napier, Lollipop, The Nigger, Sir J. Franklin, Bessie, Miss Burdett Coutts, and Duchess of Wellington. In the class of 12 Blooms, J. Cook Esq., had Salvator Rosa, Lollipop, Rachel Rawlins, Constancy, Beauty of the Grove, Beauty of Slough, Duchess of Kent, Miss Caroline, Empress, Sir F. Bathurst, Colonel Windham, and Essex Triumph. Mr. Holmes showed Lord Palmerston, Caroline, Sir C. Napier, Sir J. Franklin, Cherub, Diadem, Yellow Beauty, Sir F. Bathurst, Miss Burdett Coutts, Bijou, The Nigger, and Lollipop. The Rev. C. Fellowes sent Fanny Keynes, Miss Caroline, Mrs. Wheeler, Lilac King, Rachel Rawlins, Lord Bath, Marion, Amazon, Miss Burdett Coutts, The Nigger, Lollipop, and Duchess of Wellington. C. J. Perry, Esq., had Miss Caroline, Beauty of Slough, Archbishop of Canterbury, Rachel Rawlins, Ringleader, Lollipop, Annie Salter, Magnet, Yellow Beauty, Mrs. Rawlins, Annie, and Bessie. Of Fancy Dahlias, 24 Blooms (Nurserymen), Mr. Keynes produced Charles Perry, Conqueror, Polyphemus, Carnation, Lady Granville, Jonas, Empereur de Maroc, Mrs. Hansard, Miss Frampton, Duchess of Kent, Mrs. Spary, Pigeon, Model, and a few seedlings. Mr. C. Turner had Eugenie, Butterfly, Marvel, Pigeon, La Vogue, Inimitable, Enchantress, Duchesse de Brabant, Comet, Empereur de Maroc, Mrs. Hansard, Admiration, Miquette, Kossuth, Laura Lavington, Phaeton, and Gloire de Kain. Mr. H. Legge sent Butterfly, Triomphe de Roubaix, Vasco de Gama, Baron d'Arme, Malvina, Attraction, Mrs. Hansard, Annie Miquet, Duchess of Kent, Princess Charlotte, Snagretta, Laura Lavington, Gloire de Kain, Phaeton, Pigeon,

Juliana, Lady Groville, Liliput von Branduth, and some seedlings. In Twelve Fancies (Amateurs), the Rev. C. Fellowes showed Enchantress, Topsy, Triomphe de Roubaix, Inimitable, Eugenie, Miss Ward, Lady Granville, Comet, Pigeon, and Kossuth. C. J. Perry, Esq., sent Triomphe de Roubaix, Pigeon, Marvel, Gloire de Kain, Jonas, Butterfly, Reine des Belges, Uncle Tom, and Comet. Mr. C. Grant had Enchantress, Triomphe de Roubaix, Empereur de Maroc, Duchess of Kent, Reine des Fleurs, Wonderful, Gloire de Kain, Cockatoo, and Comet. First-class certificates were awarded to Fancy Dahlia Polyphemus (Keynes), flaked rose and purple; to Fancy Dahlia Model (Keynes), also flaked rose and purple, but of distinct shades; and to Dahlia Mrs. Legge (Legge), orange ground, with red or cherry tips. Lady Popham (Turner), white, with purple tips.

Messrs. Smith, Dulwich, showed thirty specimen Balsams; Messrs. Paul, a collection of Roses; and Messrs. Henderson, of Wellington Road, a number of fine specimens of Conifers, around which the beautiful spikes of Hollyhocks were tastefully arranged.

ON A FEW SHRUBS SUITABLE FOR PLANTING IN BEDS.

BY WINTONIENSIS.

THE object of my communication is to point out some of our dwarf hardy shrubs which are suitable for the borders of a small shrubbery attached to a villa residence, and the treatment of such as require peculiar care. There are few things which help to set off grounds of small extent as do shrubs, judiciously planted, and where space is limited they should of necessity be of the dwarf and choice kinds. The hardy Heaths possess a great claim to our notice in this respect, being so easy of cultivation, and producing for so long a period an abundance of floral ornament; they may be planted as a thicket in larger pleasure grounds, but in such as are of no great extent they are more appropriate objects for beds or borders. The larger beds may be planted with mixed species, or small beds with a separate kind in each. Heaths always prove attractive, for even when out of bloom their fine green neat foliage is agreeable to the eye. After being planted they do not require much attention, and will spread their branches, soon forming very symmetrical objects. Another beautiful tribe, closely allied to the foregoing, is the genus *Menziesia*, which admits as much facility in its culture as the Heaths; they are seldom destitute of their attractive purple flowers, but are not so compact in their habit as the latter, and are frequently benefited by pruning in, which should be done while the plants are young, and in the commencement of spring. *Epigæa repens* is an elegant little shrub which grows well in heath soil, and when planted thickly it soon

forms a complete carpet, loaded with its fragrant lovely white flowers throughout the early part of the summer. When once this shrub is established it will require no farther attention. The *Vinca* family is much used for the undergrowth of shrubberies, as well as for rockwork, but is not often seen in detached beds, yet there are few plants more adapted for that purpose; this genus will succeed to perfection in open spots, and will thrive under almost any circumstances. *Vinca major* is probably the least adapted for a bed, from its rapid growth, but as it may be pruned to almost any extent, the objection is of little moment; in trimming the branches, they ought not to be cut off formally round the edges of the bed, but the majority of them should be cut back farther than the rest, and a sufficiency of young shoots left to cover them. *Vinca minor* and its varieties, more especially the variegated kind, compose groups of the most interesting appearance. The beds should be small, and each kind kept separate; if raised in the centre the effect is much enhanced. There is a double blue variety, which is a very handsome object when in full flower.

Clematis Sieboldii and *C. cerulea* may also be grown as dwarf shrubs by constantly layering the shoots, and leaving portions with buds on them at frequent intervals above the soil; the buds are developed into short flowering branches, which make a very handsome appearance. There are several kinds of Honeysuckle and *Jasminum* to which the same treatment is applicable, and if grouped together would have a delightful effect. The trouble in layering is but small, and such are very soon in blooming condition; with attention to pruning and layering they are kept low, and within bounds; it is of great advantage, however, to commence with young plants.

It is a matter of surprise with me that the much-admired *Pyrus* or *Cydonia Japonica* is not more generally used for planting in beds. It may be kept dwarf and neat, although naturally of rambling habit; few plants bear pruning with less injury, and if not grown in a too rich soil will flower admirably, provided there be plenty of air and light. It may be readily propagated by cutting up the root-stems into small pieces, each of which will push and make a young plant; if pruned when young, and the branches layered, with a little attention devoted to it afterwards, it may be kept as dwarf as desired. The old scarlet and the paler variety make a fine contrast. Another great favourite for small beds is the *Daphne Cneorum*; it possesses a good habit, is very dwarf, and an evergreen. It requires to be grown in a soil composed of one-third peat and two-thirds light meadow loam, and the bed raised a few inches above the surrounding level, in a position commanding plenty of sun and air, but sheltered from cold winds. When the plants become old and show signs of decay, or should they be unsightly, it is easy to peg down and layer a few branches to form a stock of nice young plants, which the following season may be taken up, and replanted in the same bed with fresh compost. The handsome purple blossoms of the *Daphne*,

together with their agreeable fragrance, and the profusion with which they are borne in spring and autumn, combine to make this a desirable acquisition to all grounds of limited dimensions. *Polygala Chamæbuxus*, although not so showy as the foregoing, is an evergreen of dwarf habit, producing abundance of pretty white and yellow flowers. Its treatment should be like the *Daphne*, but is best grown as single specimens. Several of the dwarf *Berberises* are not to be forgotten, as *Berberis Darwinii* and *B. empetrifolia*, which are charming little shrubs. They do well in light soil, in beds open and dry, where they can have plenty of sun. The profusion of their yellow blossoms, borne for a length of time, give them a lively aspect. *Gaultheria Shallon* is a plant which may, by judicious pruning, be kept to the height of nine inches or a foot, two or three plants spreading over a considerable bed, extremely bushy, and in summer covered with long and graceful spikes of delicate pink flowers; it grows luxuriantly in loam, with the addition of a little heath-mould, and may be freely propagated by layers. *Cotoneaster microphylla* and *C. rotundifolia* command attention when planted in small beds, being ornamented by a profusion of white flowers in April and May, which are succeeded by bright scarlet berries, that remain on all winter with the leaves. It is a good plan to lay pebbles over the bed to support the branches, which otherwise are splashed with dirt in heavy rains. *Hypericum calycinum* is an old favourite, too well known to need description, and is a fine plant for a small bed, being a free bloomer, with large and attractive flowers. Many of the dwarf *Cistuses* and *Helianthemums* are well suited for our purpose, but are not cultivated so extensively as they merit; they require nothing but a light loamy soil, and may be increased either by cuttings or seeds. A few species of *Genista*, as *G. triquetra* and *G. sagittalis*, may be appropriately grown in beds, and the same may be said of *Cytisus purpureus*; all are dwarf and showy, requiring no attention after planting. There are many American or bog plants which are capable of being cultivated to perfection in beds, as *Kalmias*, *Ledums*, *Andromedas*, *Vacciniums*, *Mahonias*, and others, but my object being to name such as are not often grown in small beds, I pass them by, as well as many handsome half-hardy plants, which, although very handsome, as the genus *Leycesteria* and *Fuchsia*, I must reserve for some future occasion.

ON THE CULTURE OF LILIUM LANCIFOLIUM.

BY MR. F. HARDWICH.

TOWARDS the end of November, 1854, I prepared a bed for planting the bulbs of this beautiful Lily; the bed was four feet wide and nine feet long, composed of common garden soil, well dug and broken up with a fork, and without any manure, which I believe to be rather

disadvantageous in the culture of this plant. The bed was afterwards raked level, and the bulbs planted on the surface, spreading out the fibres every way, with a distance of fourteen inches between each; they were covered with a light mixture of fine sifted mould and sand, to a depth of four inches from the crown of the bulbs, and the surface neatly raked. After the stems were quite dead, in the following autumn, I took off the surface compost without disturbing the bulbs, and laid fresh sandy soil over them to the depth of four inches, and this year I have been favoured with a splendid show of their lovely blossoms, and am decidedly of opinion that this plant succeeds better and has a more vigorous growth, thus treated, than when kept in the greenhouse. It is a most ornamental bulb, the flowers possessing also an agreeable fragrance, and should be more extensively grown than it is, meriting a place in every flower garden. I have successfully cultivated several other kinds of Japan Lilies out of doors with much success. On another occasion I may forward a few observations for your useful Magazine.

ON HARDY HEATHS.

BY MR. JOHN TAYLOR.

THERE are few shrubs which look neater, or are so well adapted for planting in the flower garden, than the above, and their congeners; they are recommended also by the length of time they continue in flower. They will flourish in sandy peat, or in light loam and sand, though the former is more natural to their habits. They should be planted on a dry subsoil, and in an open situation; under the shade of trees they never do well. In beds, let them be planted two feet apart each way; they may be put in any time from October to May, but the earlier in autumn the better; place the dwarf-growing kinds outside, and the tall varieties in the centre. Peg down the spreading dwarf species, and neatly tie up the rest to small stakes, until they are quite established, or they may be twisted or injured by winds. As they always look best when bushy, as soon as spring arrives let them be topped down, which will induce a close growth. When they are growing they will require to be well watered, and the surface of the beds should be frequently stirred with the hoe, and all weeds kept down. To display them with advantage they must be allowed to grow somewhat closely together, yet not so near as to prevent a free current of air, and care should be taken to keep them separate from each other. Each year the bed should have a good top-dressing of peat soil, if it can be procured, which will be of signal benefit, and all dead wood should be cut out. To increase them, the best plan is to peg down some strong outside shoots, placing over them a small bank of peat, which may be done in winter or spring; in a year they will make nice plants. They may also be raised from

<i>Primula Altaica</i>	<i>Sempervivum montanum</i>
— <i>cortusoides</i>	— <i>tectorum</i>
— <i>denticulata</i>	<i>Silene alpestris</i>
— <i>farinosa</i>	<i>Sisyrinchium grandiflorum</i>
— <i>minima</i>	<i>Soldanella alpina</i>
— <i>Scotica</i>	<i>Statice sinuata</i>
<i>Pulmonaria officinalis</i>	<i>Stipa pennata</i>
<i>Pyrola rotundifolia</i>	<i>Thalyctrum alpinum</i>
<i>Ranunculus amplexicaulis</i>	<i>Thymus Azorica</i>
<i>Rubus arcticus</i>	— <i>serpyllum</i> , fl. albo
— <i>Grœnlandica</i>	— <i>tomentosum</i>
<i>Saxifraga aizoides</i>	<i>Trifolium repens</i> , fol. atropurpureo
— <i>aspera</i>	<i>Tussilago fragrans</i>
— <i>ciliata</i>	— <i>farfara</i> , fol. variegatis
— <i>granulata</i> , fl. pleno	<i>Vaccinium uliginosum</i>
— <i>oppositifolia</i> , var. major	— <i>vitis-idea</i>
— <i>stellaris</i>	<i>Valeriana dioica</i>
— <i>umbrosa</i> , fol. variegatis	<i>Veronica repens</i>
<i>Scilla autumnalis</i>	— <i>saxatilis</i>
— <i>verna</i>	<i>Vinca herbacea</i>
<i>Sedum acre</i>	— <i>major</i>
— <i>album</i>	— <i>fol. variegatis</i>
— <i>cæruleum</i>	<i>Viola cucullata</i>
— <i>sexangulare</i>	— <i>obliqua striata</i>
— <i>Sieboldii</i>	— <i>pyrolæfolia</i>
<i>Sempervivum arachnoideum</i>	

Those marked with an asterisk are annuals.

To the above might be added many of our indigenous Ferns and Mosses, all of which are attractive in an Alpine collection, and require but little care in their treatment.

ON THE CULTURE OF SWEET-SCENTED VIOLETS.

BY MR. JOHN HUNT, CROOK, DURHAM.

IT may be of use to your readers to detail the method which I pursue in the treatment of Sweet-scented Violets, especially as I have not seen a paper on the subject from any of your contributors in the late numbers of the *Cabinet*, to which I have subscribed for some time. I consider the Neapolitan Violet to be the best sort in cultivation, but it unfortunately requires protection in winter. To treat them with advantage, about the end of April take the old roots and part them, plant them out in beds on a north or north-east border, there to remain till the end of September; then take them up and pot them in thirty-two-sized pots, in a mixture of vegetable mould, road-scrappings, and loam; if not sufficiently gritty, add a little coarse river-sand. Place a tile in the bottom of each pot, likewise a handful of potsherds, broken very small. Water them, and plunge them in a frame in cinder ashes, elevating them to within a few inches of the glass; draw off the lights in fine dry weather, and protect them from rain and damp; they will flower profusely the whole of the

winter. They will also bloom in a greenhouse, provided they are placed in a dry airy situation. This kind has a double flower, light blue, and is sweet scented. The New Russian Violet is, without exception, the best *hardy sort* we have, as it blooms profusely the whole of the winter in the open ground in any situation, which makes it very desirable to cultivate. Bedding them out every two years, about the end of April, in a dry soil, is quite sufficient; they require less room than many other kinds, as they make but few runners: a large, single, purple flower, very fragrant. The Banksian Violet has a sweet perfume, flowers single, purple, but not so profuse in blooming as the former. It requires to be planted on a warm border under a south wall, in March or April, and attended with water in dry weather; it will flower early in autumn. Several other varieties might be enumerated, but they are less worthy of notice.

REMARKS ON THE TREATMENT OF THE GENUS HERMODACTYLUS.

BY T. SMITH, BENSON.

THIS genus is very nearly allied to the Iris, and the species require very similar treatment to some of the species of that genus. The common Snake's Head was formerly known as *Iris tuberosa*, but now called the *H. bispathaceus*; I have grown this and *H. longifolius* with some success, and the mode of culture which I pursue is as follows:—I plant the tubers in a soil composed of two parts turfy peat, one part of white sand, and one part of completely rotted stable manure, all well rubbed together, but not sifted, and put them in six inches deep, placing a little of the finest soil about them at the time of planting, and so form the beds that the compost shall extend below the roots to at least nine inches deep. As they are hardy they require no protection, except when in bloom, which happens so early in the season, that many flowers are destroyed by the spring frosts. It is, however, always necessary to plant the roots in an open situation. The only time in which the roots can be removed with safety is when they are in a quiescent state. The foliage begins to die down about the end of May, and continues to do so until the middle of June, when the roots may be dug up, and kept in sand in a moderately dry place for about a month, and afterwards planted, as before mentioned. If grown in pots they may, of course, be removed at any time; but they do not bloom so well when thus treated. Care should be taken not to break off the digitals of the root in taking up and planting, for if that happen they will be prevented from flowering. Something of this kind occurs when the roots are left undisturbed the whole summer; for, being fleshy, the worms and various insects are attracted to them, which gnaw and separate the digitals, if they do not destroy the roots. There would, however, be no chance of the plants living long in a cold adhesive soil where worms do not abound, a light soil being essential to their proper cultivation.

ON THE CULTURE OF CHOROZEMAS.

BY F. W. T., EXETER.

It is generally found a matter of no small difficulty to produce large well-grown specimens of this and other valuable plants of New Holland; many specimens are either weak through being drawn, or, what is worse, scarcely make any progress at all. The following appear to me to be the probable causes which militate against successful cultivation.

First, being placed at too great a distance from the glass, which always tends to draw them up weakly; the atmosphere too close and damp, the sure consequence of the want of a free circulation of air or want of light. Secondly, improper soil, careless potting, or incautious watering. By keeping these matters in view, and carefully avoiding to practise them, I have succeeded in growing plants of this description to a degree of excellence far surpassing my expectations. The soil in general recommended is an equal mixture of very sandy peat and loam; this composition for plants like those I am now speaking of does not fully accord with my experience. I select a quantity of peat, carefully avoiding such as does not contain a good deal of fibre, or that has not a considerable portion of white sand equally mixed with it, rejecting as entirely worthless all such as inclines to be stiff or very sandy; to this is added no more than one-fourth of mellow sandy loam; the whole is then carefully blended and examined, and if the grains of sand are found not to touch, or nearly so, throughout the whole, so as to give it a greyish cast, what more sand is thought sufficient is thrown in and properly mixed up. The soil is never sifted—I avoid this practice, as taking out the most essential part, namely, the fibre—but after being well broken up with the back and edge of the spade, what lumps remain too large are reduced with the hands. Any soil naturally retentive, or that inclines to become close, is always objectionable for these and, in short, all fine-rooted plants. On their first removal after striking, the plants are put into sixty-sized pots in the above soil, being very particular in putting not less than two inches good drainage at the bottom of each; they are afterwards removed again to the propagating house, being first gently watered with a fine rose; here the atmosphere is congenial to them in this state, and will consequently cause the roots to push, and prepare them for a removal into an atmosphere more suited to their constitution, which should take place in about a week, as the young roots will have taken hold of the new soil. The next situation sought for them is a pit or frame, where they can be placed near the glass, and shaded from the hot sun; in fine weather air should be admitted freely, and the plants carefully watered every evening. They are finally placed in the greenhouse, as near the glass as possible; but I take care not to place them opposite a ventilator where the air is admitted, as this would prove injurious to them, the house re-

quiring to be freely ventilated ; if, however, the air is admitted from the roof they sustain no injury. The house should be shut up in the evening. As these plants suffer from over-potting, it is necessary here to caution against so dangerous a practice. One thing that greatly accelerates the growth, and tends to ensure success in cultivating these plants, is to avoid setting the pots where their sides are likely to be much dried by the sun ; this practice materially injures the young roots, and consequently weakens the plant. It is well to lay a little sandy gravel for the pots to stand on ; this, when watered, retains a degree of moisture and prevents drought, and consequently the sides of the pots cannot dry ; it moreover feeds the leaves, and strengthens the whole plant ; but when this is practised it is necessary to observe the strictest caution in watering. The advantage of keeping the floor damp, and employing other materials for that purpose, is only available in summer, and should not therefore be practised in the winter, when the plants are not growing. In the winter it is not the growth of the plants that is the cultivator's study, it is rather how he shall best keep them alive until the return of the growing season, and of all to be thought of on this head, perhaps the first and most important is the preservation of their roots ; to secure these, watch hourly against too much moisture arising from over-watering, and take care that the drip does not fall into any of the pots. In damp weather, or when moisture begins to appear, a little fire may be applied with advantage in the evening, and in the morning after, if the weather be favourable, admit fresh air for an hour or so, carefully and effectually observing to keep out at all times cold winds and frost.

Potting is in general looked upon as of minor importance, but a badly potted plant, however healthy when shifted, never thrives. Where the soil is compact, and properly put about the roots, the plant will grow freely and root well ; but, on the other hand, if the soil is put in loose, or left in holes, the plant languishes, and ultimately dies if allowed to remain in that state ; it is therefore necessary to place the soil compactly and properly about the roots when potting, never forgetting to effectually drain every pot as before directed. The propagation of these plants is a difficulty which every gardener acknowledges and experiences, but even this becomes comparatively easy when steadily and attentively followed up. The few following hints will be useful. The cuttings should be taken off while the wood is young, and carefully prepared ; take off the bottom leaves with a sharp knife, and make a clear cut just through the joint. The cutting pot should be drained, and filled to within two inches of the top with the soil before spoken of, on the top of this put a layer of clean white sand, in which plant the cuttings, making a little hole for their reception with a small stick ; when the pot is full, give them a steady watering with a fine rose, after which place a clean glass over them. In this state they may be removed to the propagating house (where the temperature should not sink below sixty-five degrees), and

plunged into a little sawdust. They should be shaded from the sun. The glass should be wiped quite dry every morning, and the cuttings, when necessary, carefully watered. The object of filling the pot up to within two inches of the top with soil is to enable the young roots, as soon as they are formed at the bottom of the cuttings, to take off at once into the soil, which greatly strengthens them, and prevents the check which would ensue when potted off, if allowed to form their roots wholly in the sand. Seeds of many of the species ripen in abundance, and as they in general vegetate freely, plants may be readily increased from them. They may be sown in any light soil, carefully avoiding such in which dung is incorporated; placed in a gentle heat, securely shaded from the sun, and judiciously watered, they will come up well; and when four leaves are formed they may be potted off in the manner and with the same description of compost as directed for cuttings.

ON THE TREATMENT OF HYACINTHS, WITH REMARKS ON THEIR CULTURE BY THE DUTCH.

BY E. L.

HAVING had some experience in the treatment of this bulb, and a good knowledge of the Dutch system of culture, I forward you a few hasty remarks for the *Cabinet*. The mode in use in Holland has been pretty clearly laid down in a work by St. Simon, published at Amsterdam some years ago, in which everything that can be, and a great deal more than need be, said on the subject is contained; as it is now a scarce work, perhaps it may not be accessible to many who would otherwise be glad to consult it.

The compost used at Haarlem is rotten cow-dung, decomposed leaves, and fine sand. In making this compost, the Dutch gardeners prefer the softer leaves of elm, lime, and birch, rejecting those of oak, ash, chestnut, or beech, which do not rot so quickly. The cow-dung is from stall-fed cattle, without any mixture of straw or other litter. The sand is procured in the neighbourhood of Haarlem, where the soil is a deposit of sea-sand upon a compact layer of hard undecayed timber, the remains of an ancient forest which has been submerged by the sea. The best sand is that procured by digging some depth. St. Simon imagines this sand possesses some peculiar virtue by the admixture of salt, and in this he is probably correct. The leaves are laid in a large heap, in a situation not much exposed to the sun, and not liable to stagnation of water, which is carefully drained from them. When fit for use, the compost is made thus: first they place a layer of sand, next dung, and then leaves, each stratum about eight inches thick, and they are repeated until the heap is about six feet high, a layer of dung being uppermost, sprinkled over with a little sand, to prevent the too powerful action of the sun upon it. After

the heap has lain about six months, it is mixed, and thrown up afresh, in which state it remains some weeks, to settle, before it is carried to the beds. This compost retains its qualities about six or seven years, but the Dutch avoid setting Hyacinths in it two years successively; in the alternate years they plant Tulips, Jonquils, Narcissuses, Crocuses, Fritillarias, Irises, etc., in the same beds; neither do they plant Hyacinths in the compost the first season, when the fresh manure might be injurious to them. The choice bulbs are taken up every year, and the soil that lay amongst the fibres is then carefully brought up to the surface. The beds should be deep enough to prevent the fibres coming near the subsoil. I believe that English sea-sand will suit the Hyacinth as well as that of Haarlem, and that old tan, if thoroughly decayed and pulverized, may be used instead of leaves, and I know some Dutch gardeners who use it themselves. The cow-dung should be as free from straw as possible, and without the admixture of any other kind, and completely decayed before it is used. The mischief occasioned by the fermentation of half-rotten straw, and the too great heat of horse-dung, etc., is a contagious decay amongst the bulbs, which will spread throughout the bed.

The beds should be made about three feet in depth with the compost, consisting of about one-sixth of rotten leaves or tan, two-sixths of pure sand, and three-sixths of rotten cow-dung. The compost should not be trodden down hard; but, the bed being opened, the bulbs may be ranged, and then carefully covered from three to five inches deep, but not pressed into the compost. If the situation be wet in winter, the beds may be raised six inches, or even more, above the level of the soil, to prevent the evil effects of moisture. The Dutch cover their beds with dung or tan in winter, which they put on or take off, according to the state of the weather. The compost requires no additional manure till the expiration of about six years, when it should be mixed with fresh sand and dung, as before. When the Hyacinth leaves begin to wither, the bulbs should be taken up, the leaves cut off, and the bulb laid on its side, covering it lightly with the compost, about two inches thick; in this state they should remain about a month, then taken up in dry weather, and exposed to the open air some hours, but not to a powerful sun. They should afterwards be carefully examined, and all the decayed parts removed by a knife. The bulbs should be placed in the store room, which ought to be airy, about the end of June; they must not be suffered to touch each other, and should be frequently examined, in order to remove those which may show fresh symptoms of decay. They will require keeping in a dry, cool, airy room; if damp westerly winds prevail, the ventilators should be kept closed. Before they are replanted in autumn, they should again be carefully examined, and all decayed parts and withered coats removed.

My experience prompts me to say that those who will take the trouble of following these hints may produce Hyacinth bulbs equal to those imported from Holland.

ON THE TREATMENT OF *DIPLADENIA CRASSINODA*.

BY MR. W. THOMAS, ST. HELEN'S.

THIS is one of the most ornamental of our stove climbers, the management of which is but imperfectly understood; probably, my plan of treatment may be of service to your readers, and is as follows. If propagated from cuttings, I select such as are about three inches long, slipping the leaf off with a spur, and insert them in sandy peat, in a well-drained pot, covering them with a bell-glass, and then plunge the pots in tan, or any brisk bottom-heat. They will not bear much water, being very liable to damp off, it must therefore be administered judiciously. When moderately furnished with roots, I pot off singly in small-sized pots, using decayed leaf-mould and good loam with silver sand. A warm and moist situation for the young plants must be chosen, and care taken to shade them from the sun, until they are established. I find they do well in a hotbed frame, shaded with canvas. I shift the young plants, as often as they appear to require it, into a larger size, and it is well to perform this operation in time, so that they do not become at all root-bound. Early spring is the best time to put off the cuttings; by winter they will become nice strong plants, and will succeed far better than any taken off later in the year.

Good healthy plants intended for blooming the same summer I treat as follows. I turn the plant out of the pot, and shift it into one considerably larger, say ten inches in diameter, and pot with the same description of compost as for the young plants, excepting the addition of some small portion of well-decomposed stable manure and a few bits of charcoal—the latter ought never to be omitted; I carefully avoid breaking the ball of earth, and press the fresh compost pretty firmly around it. I next tie the shoots to the trellis or fan, regularly training them as they make progress. If a small-sized trellis is made use of, and a larger one is intended afterwards, observe to keep the shoots all on one side, or there will be considerable difficulty in removing them, and the plant is apt to be damaged. As soon as sifted I plunge the pot in a brisk heat, from 80° to 90° will not be too much, keeping the house from 70° to 85°. When the weather is bright I use the syringe freely in the evening, but am careful to avoid soddening the soil, and never water it at the roots until it has become dry; the hot noonday sun should be kept from the plant by a timely shading. Under this management the *Dipladenia* prospers, and soon fills the pot with roots; when this occurs, I again shift into a twelve or fifteen-inch pot, and fix the trellis, training the shoots over it to the best advantage for flowering. I then replunge the pot, and keep it in a warm moist atmosphere; under such circumstances it will rapidly progress, and by the end of June it will make a fine display, and will have covered a trellis of considerable size. When coming into bloom, I occasionally give a

little manure-water, which will be found to increase the size of the flowers and the strength of the plants. If kept in a moist stove it will bloom throughout the summer, but I always find that a removal to a cooler temperature, as of a conservatory, soon puts a period to its beauty. For this reason I never remove my plants to the greenhouse or conservatory, but bloom them in the moist stove, where the roots have plenty of bottom-heat. When summer is over, and the bloom gone off, I begin to limit the supply of water, which will be of service in maturing the wood; from November until the end of January I give very little, the plants requiring to be maintained in an inactive state through the winter months.

Under the foregoing treatment I have had handsome specimens, covered with blossoms from June to August, and I find young plants produce flowers and foliage much larger, and in greater number, than those which have been already bloomed.

ON GROWING GREENHOUSE PLANTS IN PITS OR FRAMES.

BY A NOBLEMAN'S FLOWER GARDENER.

It appears to me that the only purposes to which greenhouses, constructed according to the present prevailing mode, should be devoted are those of displaying plants during the period at which their flowers are opening or expanded, and preserving them in the winter season. Greenhouse plants and a number of tender annuals, which constitute some of the principal ornaments of our conservatories in the summer, are too seldom grown with such success as to appear to advantage from any and every point of view. Deficiency of air and light is doubtless the cause of this inferiority. In the greenhouse, notwithstanding all the cultivator's efforts to place the plants so as to leave a proper space between each, this is confessedly impracticable, without transferring a large proportion of them to the open air. For such as happen to be removed to the latter situation, necessity enjoins that they should be crowded together as closely as possible, in order to screen each other from the powerful rays of the sun, as well as from its evaporating action upon the soil in which they are potted.

Perhaps some objections may be brought forward against both the greenhouse and the open air for the summer growth of the hardier kinds of plants requiring artificial culture. Only a few of those which refer to the former of these positions need here be urged. What I have already said respecting the insufficiency of solar light must, with regard to some plants at least, be slightly modified. Heaths, for instance, appear to want occasional shading, when the sun's rays are very violent; but most other greenhouse plants would endure, and flower more freely under a far greater degree of

light, provided their roots were sufficiently excluded from the influence of the sun, and prevented from becoming too dry. It is their confinement in pots, the exposure of these latter to the solar beams, and the inability of the culturist to keep them duly moist under such circumstances, that causes the plants to look yellow and sickly; and not, as is frequently presumed, the agency of light, except where this is poured upon them suddenly after they have been confined for some time in comparative darkness. To afford as much protection as possible to the roots, plants of this nature should all stand on the same level, and their individual growth should be such as to secure the necessary umbrage to their own roots. Neither of these ends could be accomplished in the greenhouse; for even a level stage placed near enough to the glass would have an extremely unsightly effect, and materially check the circulation of air. From considerable experience and attentive observation, I have found that the surest way of obtaining perfect specimens of greenhouse plants is to place them during their growing season within a foot of the roof, to remove temporarily the lights or sashes, merely replacing them in cold weather, or when heavy rains are expected to fall, and throwing a covering of thin canvas over the framework of the house when the sun is very bright. This last operation would not be requisite to the plants in a natural state, but, from being long kept in pots, their acquired habits would, under the treatment above named, demand this or some similar precautionary measure in the early stages of their development. Such canvas would mitigate the sun's influence fully as much as the thickest glass, while its perviousness to air at once decides its greater suitability. Further, each plant should be elevated at least two feet above the floor or stage.

This is perhaps one of the most strikingly beneficial systems of management which the aspiring cultivator can follow. Assuming that the house in question has front and end moveable lights, when these are thrown open, it is not easy to conceive a more thorough circulation of air between, around, and through all parts of the plants than would thus be ensured. Frames, besides being better adapted for carrying out this plan and supplying much greater facilities for its execution than greenhouses, are infinitely more economical, and can be kept in any private part of the garden. This plan is applicable to all the plants that are ever grown in a greenhouse. As there are few cultivators who do not possess frames, and these being very generally unemployed during the summer months, no inconvenience will be created by the plan I have proposed; in fact, a saving of trouble, on account of frames requiring less attention, and being altogether easier to manage—and what is of still greater importance, the attachment of a very considerable additional value to the plants—undoubtedly attends the application of this system. Such plants as Cockscombs and Balsams not only thrive best with but actually require frame culture. That humid heat, constant proximity to the glass, and frequent shifting in which

they delight cannot so well be supplied and attended to in any other situation. Frames, indeed, should be regarded as summer nurseries for the greenhouse, to which last structure no plant should be introduced that has not gone through a regular preparation in the first. Under this system of management we shall find many plants flourish in a manner far superior to what they did under the old routine of greenhouse culture alone.

NOTES ON THE BOTANY OF THE MONTH.

BY MR. EDWARD SHEPPARD, BURY.

Few pleasures afford more true gratification to a contemplative mind than an autumnal morning's ramble; each season furnishes its own enjoyments, and has its separate votaries, but there are accompaniments to that of autumn, independent of the peculiar temperature of the air, which are singularly impressive. It is, however, the woodlands that now exhibit the most strongly marked character; the leaves turn yellow, red, or various shades of brown, and at length falling, by degrees cover the earth with a thick carpeting, though the Oak and Beech, with a few deciduous trees, retain their dead leaves till spring. An old writer has observed truly, "When I see leaves drop from their trees in the beginning of autumn, just thus, think I, is the friendship of the world. Whiles the sap of maintenance lasts my friends are abundant; but in the winter of my need, they leave me naked. He is a happy man that hath a true friend at his need: but he is more truly happy that hath no need of his friend."

Hips and haws now ornament the hedges; the berries of Bryony and Privet, of the Berberry and Blackberry, Holly, and Elder—from which is made the famous wine of Old England's peasantry—with Sloes, and the purple or crimson fruit of the Nightshade tribe, are in great plenty, and besides affording a harvest to our feathered tribes, make up in some measure for the absence of many of our native floral beauties. Not alone on the land, the fair sward, and in hedge-rows are we to look for pleasing forms of the Creator's skill; but if we take a ramble along our coasts, we perceive that on "the shell-strown borders of the ever-rolling ocean" the botanist may discover objects of wonder and delight. Of submarine plants our coasts (particularly the western) furnish a great variety, many of which are very beautiful, and particularly remarkable for the fineness of their texture, as well as the brilliance of their colouring.

"Call us not weeds—we are flowers of the sea,
For lovely and bright, and gay tinted are we;
Our blush is as deep as the rose of thy bowers,
Then call us not weeds—we are ocean's gay flowers."

One of the most remarkable is the Sea-dock, which, when in a state of perfection, is of a rich blood colour; this plant is so thin, and so

strongly adhesive, that if laid on paper, the sheet may be folded in any form without occasioning either wrinkle or separation. The colour retains its brilliancy for many years, and, when it has somewhat faded it becomes variegated with red and yellow, bearing some resemblance to a striped tulip. Of the same genus there is one species which has been denominated the Sensitive Fucus, from its possessing the curious property of shrinking from the touch, and indeed from everything warm: if brought near the fire, its edges begin to move and draw towards each other; but if, while in this state, the finger be brought near them, the edges again retire and resume their primitive position. Placed on a warm hand, all its parts appear convulsed, and it seems to writhe like an animal in pain. All the smaller kinds of Algæ, as these plants are termed, are the finest possible objects for the microscope, and show numerous wonderful contrivances, and singular diversity of structure. Of the larger-growing kinds, the most common is the Great Strapwort (*Laminaria*), which has dark green leathery fronds, from three to four feet long. Bladder-weed (*Fucus vesiculosus*) has long, dark green, tough fronds, covered over with large round blisters, which are full of slimy juice when fresh, and when dry, crack if trodden upon. Then there is the *Plocclanium coccineum*, a delicately red feathery sea-weed frequently collected by visitors to the coast. There is another noticeable kind, *Ulva latissima*, having a thin, wide-spreading, bright green frond, crimped, crumpled, and curled into all fantastic shapes. Many more than these may be gathered on any part of our coast in an hour's walk, especially near the mouth of the Thames, where a number of rare kinds are carried by the currents of the German Ocean. Sponges also are frequent on our western shores, generally found adhering to the solid rock, to moveable stones, or to large shells. Some of these sponges have projecting parts, resembling leaves curled up; others appear as solid oblong balls, and others again are full of large circular holes at the extremities of their tubercles, exhibiting, when taken out of the water, a colour approaching to purple, which speedily fades on exposure to the air. These and many other objects equally curious and instructive may be met with by the attentive observer of nature, who finds

"sermons in stones,
And good in everything."

I have in my possession a considerable number of dried specimens of sea-weeds, which are really pretty objects, collected by myself during a few rambles on the south and western coasts of this island; when I look them over, or exhibit them to admiring friends, I may say with Bernard Barton—

"I will not repine while remembrance can be
Still blest with the moments I've spent by the sea."

Those who may be inclined, and are favoured with opportunities to collect and dry the marine Algæ, may derive a little assistance from

a detail of my plan of proceeding, which is as follows:—When gathered, they may be either dried in the sun or put in a bag until a convenient time for spreading them out; when this is to be done, place them in fresh water, and gently wash them, to remove sand and dirt, as well as to dissolve any incrusting salt. Place such as are delicate in a plate of water, and there spread them out, one at a time; slip a piece of clean paper under each, if lifted up with care, the specimen will settle evenly upon it; place it in a book, and it will soon dry. Some will adhere to the paper of themselves; others may be fixed, when dry, with a weak solution of gum Arabic. I cannot conclude this paper without recommending two delightful little works on this and kindred subjects, which all lovers of marine productions should read—Landsborough's "British Sea-weeds," and Gosse's "Naturalist's Ramble on the Devonshire Coast."

DESIGN FOR A SMALL ESTATE, COMPRISING ABOUT TEN ACRES.

BY T. RUTGER, ESQ.

(Fig. 1.)

THE design here given comprises an area of about ten acres. The approach has a lodge entrance, with a sweep to the house and round to the stables. The east wing of the house is meant for the in-door offices, screened with shrubs on the north and south. Proceeding to the left from the south front, the kitchen garden may be entered, or the main walk may be kept, leading round the outskirts of the premises. At the south of the kitchen garden the water may be crossed, by entering a mass of rockwork, or a covered grotto, with a flat bridge over the stream; by keeping the original walk, a moss-house on the left appears on the lawn, which may be screened with a shrubbery, having a walk to lead to it; proceeding onward there is an ornamental bridge, from whence the walk leads to a summer-house, and from thence to another bridge, thrown over where the stream is supposed to enter the premises, or, by diverging to the right, a walk leads to the water, where there is a boat-house, and from which point another walk strikes off to the right, and joins the walk which leaves the grotto. Proceeding from the bridge where the stream enters, a walk leads into an aviary, in which are meant to be covered erections with trellis-work or wire fronts, with a small basin in the centre. The flower garden may be entered from the aviary, in which there is a plant-house, and a pond in the centre, with a fountain; at the north of the plant-house is a space to receive the greenhouse plants in summer. At the east end of the house a glazed corridor leads to a circular conservatory, supposed to have a dome over it, with stained glass, from which a walk leads to the flower garden, and also walks leading round the north and south fronts of the house. The ice-

house is placed at the end of the orchard, on the south of the kitchen garden. There is a temple at the east end of the water, and on the lawn behind are two circles for statues. The small circles about the conservatory and in front of the flower garden are intended either for orange trees in summer, or for vases or other embellishments. At the front of the flower garden a wire fence may be erected for creepers. Vases and ornamental structures may be placed in different parts of the premises as taste may direct. The remainder will be understood by the reference.

Reference.—1. Stable-yard, with stable, coach-house, and harness-room. 2. Piggeries. 3. Dung-yard, with sheds for the use of the garden. 4. Poultry-court, with sheds for fattening, etc. 5. Frame-ground, with sheds, and for under gardener's room, etc. 6. Laundry-yard, with laundry and brewhouse. 7. Forcing department. 8. Gardener's house. 9. Kitchen garden. 10. Orchard and fruit garden. 11. Slips—the western one intended for a row of filberts, berberries, etc. 12. Back entrance to gardener's house and frame, ground. 13. Walk leading to back entrance for the domestics.

DESIGN FOR A GEOMETRICAL FLOWER GARDEN.

BY J. MAJOR AND SONS, LANDSCAPE GARDENERS, KNOSTHORPE,
NEAR LEEDS.

(Fig. 2.)

THE accompanying design is for an ideal parterre upon a lawn, arranged in the geometrical style, and which, owing to their stiff and formal character, should never be placed (except in very limited grounds) so as to interfere with the repose of what ought to form a free, flowing, and natural composition. *a*, an umbrella seat; *bb*, covered seats. The small squares on the grass are sites for vases, urns, sculpture, etc. The round beds are to be occupied with masses of bedding-out plants. The small dots along the walk-sides indicate the situations for standard roses.

GRAND FLORAL EXHIBITION, CRYSTAL PALACE.

THE last grand exhibition at the Crystal Palace, for the present year, took place September 10th, 11th, and 12th, and was one of the most successful which has been held under the auspices of this enterprising Company; the number of visitors exceeded fifty-two thousand, and prizes for plants and flowers were awarded to the value of £338 15s. The display of Dahlias was fine, measuring a length of more than sixty yards, in three rows, Mr. Turner taking the lead in the first Fifty Blooms. Among the best flowers were the following:—Chance, Lord Bath, Eclipse, Grand Sultan, King of Autumn (rather low in the centre), Perfection, Duchess of Wellington, Captain

Ingram, Lord Palmerston, Shaded Model, and Lady Popham. Mr. Turner was followed by Mr. Keynes, in whose stand we remarked Amazon, Andrew Dodd, Ruby Queen, Chrysalis, and Annie. Mr. Henry Legge had the third prize in this class, the best in his stand being Annie Salter and Fanny Keynes. Mr. Charles Kimberley, Messrs. Drummond, and Fraser were other exhibitors in the Fifty Bloom class, to the two latter of whom were given extra prizes. In Twenty-four Blooms, the Rev. Charles Fellowes, Shottesham, stood first; Queen Victoria, Mrs. Wheeler, Lord Bath, Lilac Model, and Lord Palmerston were his best flowers. Mr. George Holmes, Brook Lodge, Norwich, second prize; the best blooms—Fanny Keynes, Grand Sultan, Perfection, Cherub, and Lord Palmerston. Twelve Blooms, Fancy, Mr. Henry Legge obtained the first prize; the best flowers being Miss Bathurst, Gloria Mundi, Baron Alderson, and Princess Charlotte. Mr. Turner was second in this class, showing Butterfly, Mrs. Hansard, Comet, Pigeon, Miss Frampton, Elizabeth, Topsy, Magician, Mr. Willis, Mutabilis, Miss Herbert, and Princess Charlotte. Several seedlings were shown, some of which received prizes; we notice Lady Franklin (Rawlings), salmon-red, shaded, tolerable outline and good centre, but rather small. Albion (E. C. Allen), French white, with a cream centre, well up, tolerable outline, a medium-sized flower. Fenella (Holmes), white, laced with purple, a good depth of petal. Delta (Turner), yellow, very full centre, well up, tolerable outline, but rather flimsy petal. Roland (Bushell), white, deeply laced with carmine-purple, centre rather too low. Satirist (Turner), salmon-red, shaded with ruby, a full centre, but a small flower. Duchess of Beaufort (Bushell), white, tipped with purple, fine outline, well up, good. Marion (Fellowes), creamy blush, lightly laced with purple, fine outline, good petal and centre, with great depth. Touchstone (Fellowes), ruby red, tolerably good centre. Saturn (Turner), clear yellow, slightly laced with buff-red, good centre and outline, a fine flower. Lady Popham (Turner), creamy white, well up, good outline, and a fine depth of petal. Cherub (Holmes), deep orange, good petal, centre, and outline. Two seedlings of 1855: Mrs. Legge, clear yellow, lightly laced with buff-red, good centre, but rather quilled. Fancy King, buff and red, tipped with white, a second-rate flower.

There was a fine collection of German Asters, cut blooms, in stands of twenty-four, and nothing could be finer than some of them, being perfect hemispheres three and four inches across; a length of twenty yards was occupied by these flowers. The first prize was given to Mr. Betteridge, Milton Hill, near Abingdon.

Hollyhocks were very fine: two collections in spikes—the best by Mr. Chater, the second Messrs. Paul. The first exhibited Mr. Joshua Clark, deep crimson-scarlet, extra fine. Sir W. Middleton, salmon-buff, large. Purple Perfection, fine deep purple, large. Ignea, salmon-scarlet, very double and full. Jabez Chater, salmon-red, very full, and extra large. Sulphur Queen Improved, creamy yellow, large

and full, Lilacina, lilac-purple, fine. Alexandrina, delicate French white. Golconda, rosy orange, full. Lizzy Roberts, one of the purest whites we have seen. Lady Middleton, rosy red, large and full. Messrs. Paul had Primrose Perfection, delicate and fine. Lizzy Improved, delicate flesh, fine and very double. Queen of the Whites, a good flower. Louis Napoleon, veined lilac, maroon base, very full. Rosy Morn, bright pink, very double. For Cut Blooms Messrs. Paul came first; their best were Lizzy Improved, Lord Jocelyn, Avalanche, Mrs. Ashley, Glory of Cheshunt, Village Maid, and Miss Ashley. Mr. W. Chater, second prize; the best being Phoebe, William Chater, and Mrs. Ashley. Mr. Turner obtained the third prize, showing Black Prince (fine), Comet, Souvenir, and Lizzy. Mr. Bragg was fourth. Mr. Chater had some seedlings, not sent for competition; a few of which were distinct, and very promising. Mr. Shenton, of Hardon Park, exhibited two seedlings, named Louisa Grant and Eilen Shenton.

Roses—of these there was a good show of cut flowers, Mr. Mitchell, of Piltown, near Marcsfield, having the best. We noticed in his stand Paul Dupuy (H. P.), very double; Le Lion des Combats (H. P.), semi-double, rich and very fine. Messrs. Paul were second; their best being Lamarque (N.), delicate sulphur, and Mrs. Bosanquet (H. C.) Mr. John Cranston, King's Acre, Hertford, exhibited a fine collection, comprising about forty blooms of Gloire de Dijon (one of the best Roses grown), and the following: Souvenir de la Malmaison, Cloth of Gold (N.), La Reine (H. P.), and Niphetos (T.), a loose flower, but delicate. Mr. Francis, of Hertford, obtained the third prize; in his stand were Emperor Napoleon, (H. P.), one of the richest flowers grown, scarlet-crimson; Lane (H. P.), clear, pale violet-crimson; also twenty or thirty blooms each of Géant des Batailles (H. P.), Gloire de Dijon (T.), and La Reine (H. P.) For collections of Twenty-five Blooms, Mr. Brush, Norwood, was first, Mr. Evans, Nuneaton, second, and Mr. Wortley, Norwood, fourth.

Of seedling florist's flowers, we must not omit to mention a Fuchsia exhibited by Mr. Mitchell, named *Grandiflora plena*; the tube and sepals crimson, corolla rich violet-plum colour, large, and very double; a very good variety. Petunia, Mrs. Cutbush, flowers white, foliage much variegated, having a rather sickly appearance. Geranium, Burning Bush, variegated foliage like Flower of the Day, with a pretty pink ring in the leaf, which is, altogether stiffer and more flat; the flower itself a pretty good scarlet.

There were several collections of Verbenas, the best being shown by Mr. Shrimpton, gardener to A. J. Doxat, Esq., Putney Heath, and were in pots, trained over flat circular wire trellises; we would call attention to Lord Raglan, a fine brilliant scarlet, with white eye, and to Wonderful, a purple variety of considerable merit. Messrs. Weatherill and Bragg got second and third prizes.

Fuchsias occupied a stage about twenty-five yards long, and comprised some well-grown plants. Mr. Mitchell took the first

prize. Of light kinds we remarked Venus de Medici, Pearl of England, Duchess of Lancaster (pure white, with rose-coloured corolla), England's Glory (a good flower), Clio, and Snowball. Among dark kinds were Autocrat, Prince Albert, Orion, Duke of Wellington, Banks's Glory, Alpha, and General Williams.

The display of Scarlet Geraniums was about fifteen yards long, and three stages deep. Mr. Weatherill was awarded the first prize. The best of this class were Le Titian (a very fine compact flower), Rubens, Lady Middleton, Tom Thumb, and Trentham Rose. Among sorts with horseshoe leaves were Baron Hugel, Masterpiece, and Brighton Hero; and of variegated sorts, beautiful plants of Brilliant, Attraction, Silver King, Golden Chain, and Flower of the Day. There were also variegated and other kinds grafted standard high. These were grafted by cutting off the head of the stock, and splitting it open to the length of about two inches, in which the graft cleanly cut was inserted.

There was a fair display of Achimenes, in which class Mr. Mitchell took the lead, followed by Mr. Gaines and Mr. Gedney. We noticed Gigantea, a variety in the way of Picta, Chelsoni, Rosea, the blue and white varieties of Longiflora, the white Margueritæ, Venusta, Backmanni (a good purple), and Edmond Bossier, white, prettily streaked round the eye with lilac.

A fine collection of Ferns was exhibited. Of *Gymnogramma* there were some beautiful species; also *Cheilanthes lendigera*, *Asplenium Belangeri*, *Gleichenia dicarpa* (a beautiful small-leaved kind), *Hemidictyum marginatum*, and *Sagenia alata*. *Adiantums*, *Aspidiums*, and others more commonly met with, were also abundant. Messrs. Smythe, Carson, Fletcher, Morris, and others obtained prizes in this class, as also in Lycopods, of which there were a few good collections, in which we may mention the following as most interesting and beautiful:—*L. Danielsianum inequalifolium*, *Mertensi*, *lepidophyllum*, *Casium arboreum*, *Galleotti*, *stoloniferum*, *denticulatum*, *flexuosum*, *umbrosum*, *viticulosum*, *Wildenovi*, and *apodum*. The compact green tufts of the last were the admiration of all.

Messrs. Veitch showed a beautiful collection of Pitcher Plants, as did also Mr. Gedney; the kinds were *Nepenthes Rafflesiana*, *ampullacea*, *lævis*, and *phyllamphora*.

Heaths were sent by Messrs. Brush, Peed, and Williams; the best were *Erica Clowesiana*, *Massoni*, *Irbyana*, and *retorta major*.

Orchids were not in such numbers as usual. Mr. Carson obtained the first prize, followed by Messrs. Wooley and Gedney. Among the handsomest and best specimens were *Miltonia candida*, *Odontoglossum grande*, *Vanda tricolor*, *Peresteria alata*, *Vanda carulea*, *Erica leucostachya*, *Angræcum caudatum*, *Epidendrum vitellinum*, and *Oncidium lanceanum*.

Of Stove and Greenhouse Plants, the first prize was awarded to Mr. Taylor, gardener to J. Coster, Esq., Streatham; the second to Mr. Peed; and Mr. Hamp, third. These collections generally

comprised fine well-grown specimens, including *Allamanda cathartica* and *Schotti*, *Dipladenia splendens*, *crassinoda*, and *Javanica*, *Ixora coccinea*, *Æschynanthus splendens*, *Tetratheca verticillata*, *Pleroma elegans*, *Vinca rosea* and *oculata*, *Clerodendron fallax*, *Cyrtoceras reflexum*, *Erica Everiana* and *ampullacea*, *Rondeletia speciosa*. A fine display of Japan Lilies of sorts, *Lilium Wallichianum*, and other fine plants.

There was probably a better collection of Variegated plants and such as possessed fine foliage than was ever before seen. The best of the latter came from Messrs. Veitch, who obtained the first prize. It consisted of splendid plants, beautifully arranged, of *Livistonia borbonica*, *Philodendron pertusum* (a species with large and handsome leaves), *Dracena Draco* and *indivisa*, the beautiful *Aralia pulchra*, *Plectocomia elongata*, *Pandanus utilis*, *Dion edule*, *Cycas revoluta*, and *Sabal umbraculifera*. Messrs. Veitch also sent a very fine group of Variegated plants, and collections of the latter were also shown by Messrs. Lee, Jackson, and others. Among the different kinds were *Musa zebrina*, *Maranta Warczewiczii*, *Dieffenbachia picta*, the beautiful *Cissus discolor*, *Croton pictum*, *variegatum*, and *discolor* (the latter with leaves red underneath and green above), *Pandanus argenteus variegatus*, *Coleus Blumei* and *pectinatus* (the latter streaked and mottled with brown), the red and brown *Dracena terminalis* and *ferrea*, *Ananassa sativata variegata*, a variegated variety of the Aloe-leaved *Yucca*, a *Hydrangea* with green and white leaves, the variegated *Aspidistra lurida*, *Caladium pictum bicolor*, and *Begonia splendida*.

The Palace and grounds were, as usual, in excellent order; the beds well furnished with flowers, and the marble vases in the grounds and on the terraces were a perfect blaze of beauty with masses of scarlet Geraniums. In-doors the Water Lilies were full of bloom, and all the plants in perfect health. Two gigantic Tree-ferns, four yards across, were very attractive objects. The plants in pots and baskets, as well as the climbers against the pillars, were covered with bloom, and if kept up in such style each season, there can be no doubt the Palace will continue a permanent centre of attraction to all classes.

Out of doors we remarked some of the beds as especially attractive; one round a Deodar Cedar, in which German Åsters of various colours, and very double, were pegged down, looked well. The beds and borders round the Rose garden were in profuse bloom, being well filled; they are situate round a conical mound, and the plants are arranged thus: nearest the walk a narrow border of *Mimulus moschatus* (the common Musk), then Geranium Tom Thumb in a broad belt, yellow shrubby Calceolarias, blue Larkspur, and Mignonne; thus arranged the effect is charming.

The beds on each side the central walk were well in bloom, some we particularly noticed as very pretty, filled with Flower of the Day, Geranium, and *Alyssum variegatum*; the white of the latter and the

pink of the former, together with the yellow foliage, had a very pretty effect. The gardens on the upper terraces, in the Italian orchard style, were filled with Tom Thumb Geraniums, towards the outside and the centre with yellow shrubby Calceolarias, the two colours making a gay scene. Some of the beds on the upper terraces were edged with *Alyssum variegatum*, and others with Mangles's Variegated Geranium. There was also a bed containing the Crystal Palace seedling Dahlia; a variety of not more than eighteen inches high, free bloomer, deep purple-crimson, round which was a belt of white Petunia, producing a pretty contrast.

The fruit and vegetables were very numerous and fine, but not being within the province of the *Floricultural Cabinet*, we cannot devote space to particularise them.

REVIEW.

Ferny Combes. A Ramble after Ferns in the Glens and Valleys of Devonshire. By CHARLOTTE CHANTIER. 12mo, 3s. 6d. London, Lovell Reeve, 1856.

A VERY pretty little work, popularly written, containing descriptions of eighty-eight species and varieties of Ferns which are to be met with in Devonshire, and eight neatly executed plates of Devonshire scenery and Ferns. We annex the first chapter as a specimen of the work.

"On my very first page I must disclaim any intention of attempting to supersede those scientific and necessary works already published on the study of Ferns. My object is merely to give a short account of those that may be found in Devon, in such a manner as may render them readily recognised by the novice in botany, and to describe some few of the beauties of the beautiful districts of the West.

"Mr. Gosse, in his 'Naturalist's Rambles on the Devonshire Coast,' has called attention to many of its charms and wonders, both scenic and marine. He has done a good deed, as every one does who presents new objects of interest and research to those who, living habitually in romantic scenes, forget to notice them, and surrounded by many of the most marvellous of God's creations, know neither their habits nor their nature. Some indeed may inquire 'what is the advantage of knowing the names of a set of weeds which are of no use to any one?'

"'Of no use?' That is a question not for us to solve. At any rate, are many of your employments more useful? Are all so innocent?

"Ask the worn-out, heart-wearied man yonder, who has escaped for one short month from his stool in a city office—ask him if there be not a use in the exquisite and various forms and colours of the seaweeds he is turning over on the beach. He will answer 'it does

me good to look at them ; it refreshes my soul ; it makes me young again !'

"Of no use ? That is too easily assumed, and implies surely a forgetfulness of Him that made them. It does not necessarily follow that a thing is useless because we happen to be ignorant of its use. We ought to believe, we ought to be sure, that the lowliest flower or insect has, though it may be unknown to us, a real use in God's economy. 'Behold the lilies of the field how they grow !' These gaily-dressed flowers had their use. It was their mission (could they have a higher ?) to become preachers unto men, of reliance on God for meat, drink, and clothing.

"Who will deny the fascination which flowers of the choicer kinds exercise over all. But to how few are they accessible ! The costly greenhouse, the highly paid gardener, are requisite for their possession ; but what do the wild flowers cost ? Only the trouble of picking them ; and they, if people take the pains of looking for and examining them, have quite as many, though more humble, charms than their more aristocratic relations.

"'Here ! smell this bunch of butterfly orchis. Did ever a greenhouse produce a flower with more exquisite scent ?'

"'But where did you find it ? I never saw it before.'

"'Good friend, I plucked it by the side of a road you have passed a hundred times. Look at these daffodils ! where will you find colour more brilliant, texture more delicate ?'

"'But they are such vulgar flowers ; they are so common !'

"'My friend, I fear you are very vulgar, for men and women are very common on the earth.'

"Among the many pursuits that people follow now-a-days for instruction, as well as mere amusement, few have arisen in so short a space of time, or deserve more attention, than the study of that mysterious class of plants known as Ferns, which are, as most people are aware, a flowerless tribe, bearing, with one or two exceptions, their fructification at the back of their leaves, in brown masses, sometimes round, sometimes oblong.

"Here I would give a hint to young botanists, never to name a Fern unless it is seeded, as many leaves of flowering plants greatly resemble some Ferns in their outline and cutting. I have known more than one instance of persons fancying themselves possessed of a rare Fern, when, in fact, they had but the leaf of the common weed.

"Unlike general botany, which gives comparatively little pleasure after the flower is named, from the difficulty of preserving the colour of the specimens, the study of Ferns not only leads the collector into the most picturesque scenery, and wildest haunts of nature, but by the winter fireside, or in the close rooms of our crowded cities, he has but to open his 'Fern book,' and the forms of his favourites appear before him as green and graceful as when they hung by the mountain torrent, or waved in some quiet shady lane, bringing back to remembrance pleasant summer rambles amid lovely scenes, making

the heart swell with gladness at the recollection of the forms of beauty and purity on which he has been permitted to gaze.

"Some Ferns are only to be found in certain situations. *Allosorus crispus*, the Parsley Fern, so called from its resemblance to parsley, is found only on lofty hills, and people are apt to confine their search for it to the north of England and Wales, because those are the habitats generally given. Botanists, however, have not yet looked everywhere; there are still many untrodden corners, and we feel certain many an unthought-of treasure yet to be discovered. This Fern was found a few years ago on Exmoor, not far from Challacombe. We have hunted for it three or four times, but without success. In our search for the Parsley Fern we stumbled on *Polypodium Phegopteris*, the Beech Fern, for which that locality was never before given. Now *P. Phegopteris* has often in its company the delicate Oak Fern, *P. Dryopteris*, so we searched further, and, to our great delight, found abundance of *Phegopteris*, and the pretty *Dryopteris* (which until that day was supposed to be absent from Devon and the adjoining counties) intermixed with it.

"In the same glen we lighted on a few fine plants of *Polystichum lobatum*, and two of the Lycopodiuns (provincially known by the name of "Good Luck"), *L. clavatum* and *L. Selago*. Moreover, we had the pleasure of seeing two ring-ousels, or mountain blackbirds, in their native haunts, and their strange call as they whirled around us, or, seated on a stone, watched our movements, added to the wildness of the scene. *Lastrea rigida* is believed to grow only on limestone; *Asplenium viride* to be confined to lofty positions; *Woodsia* to the highest mountains and most inaccessible cliffs; *Lastrea Thelypteris* is the inhabitant of marshes; *Lastrea cristata* of bogs; yet remember there is many a bog, many a marsh, many a cliff, that has never been really well searched, and you may chance to stumble on a variety where least expected. To tell the exact spots where each plant grows would be depriving you of one of the greatest pleasures and interests of the pursuit—namely, discovery for yourself. If you take a tour through Devonshire, and use your eyes as you travel, you will hardly fail to find most of the Ferns I shall describe to you; but it is no exercise of observation to walk straight to a given point, pluck a leaf, and walk back again. No; a Fern-collector, if he really wish to make discoveries, must be ever on the alert, ever watching; even on a wall you have passed a hundred times without observing anything curious, the hundred and first time you may find a treasure you did not think was within fifty miles of you."

NOTES ON NEW AND SELECT PLANTS.

150. RHODODENDRON BROOKEANUM. Nat. Ord. *Ericææ*. — A splendid plant, named in honour of Sir James Brooke, the Rajah of Sarawak, being a native of that territory, in the large island of

Borneo, from whence it has been introduced, through the instrumentality of Mr. Lobb, to Messrs. Veitch's nursery at Chelsea. It attracted great notice at the horticultural exhibitions in 1855, and has since been flowered at Messrs. Veitch's during the present year. It is an epiphyte; the flowers are large, being near two inches and a half across, rather loosely arranged, and of an intense orange-yellow; the leaves are of considerable size (sometimes nine inches long), the roots large and fleshy, not, as is usual, fibrous. It grows on very high trees in its native forests, and is rather rare. (*Bot. Mag.*, 4935.)

151. *RHODODENDRON*, *var.* JOHN WATERER.—Colour bright crimson, with dark spots; truss very large, and foliage fine. This and the two following are varieties raised by Mr. John Waterer, of the Bagshot Nursery, and we understand have proved perfectly hardy, blooming towards the close of June.

152. *RHODODENDRON*, *var.* MRS. JOHN WATERER.—Flowers bright rosy crimson, with dark spots; a fine conical truss, and of excellent habit.

153. *RHODODENDRON*, *var.* LADY ELEANOR CATHCART.—The blossoms of this variety are a vermilion-scarlet, with a distinct blotch of chocolate-coloured spots; growth very vigorous.

154. *RHODODENDRON*, *var.* ALARM.—Perhaps one of the most striking of the hardy hybrids, each petal being edged with clear scarlet, the centre of the flower quite white. It is a late bloomer, and, with the annexed seven varieties, is now being sent out by Messrs. Waterer and Godfrey.

155. *RHODODENDRON*, *var.* BLACK-EYED SUSAN.—Purplish lilac, the spotting being more decidedly black than in any variety we know.

156. *RHODODENDRON*, *var.* BEAUTY OF SURREY.—Rich, rosy scarlet, good shape, and prettily marked.

157. *RHODODENDRON*, *var.* LORD JOHN RUSSELL.—Pale rose, the upper petal being distinctly and beautifully spotted, or rather blotched; this is decidedly the best in its way.

158. *RHODODENDRON*, *var.* MAGNUM BONUM.—Rosy lilac, spotted all over each petal; the flowers being large, and almost flat, makes it very attractive.

159. *RHODODENDRON*, *var.* PRINCE ALBERT.—Rich lake, the flowers of remarkable consistency, in fact almost approaching a Camellia; certainly one of the most distinct and desirable kinds.

160. *RHODODENDRON*, *var.* PERIEANUM.—Light rose, finely spotted; this is a very pleasing kind.

161. *RHODODENDRON*, *var.* WILLIAM DOWNING.—Rich dark puce, with an intense black blotch on the upper petal, of paint-like consistency; the flowers are individually large, and the truss magnificent.

162. *DENDROBIUM AMBOINENSE*. Nat. Ord. *Orchideæ*.—Introduced by Messrs. Rollison, of the Tooting Nursery, from Amboyna,

where it was originally discovered by Mr. Henshall. It flowered with the above-named gentleman in June, the present year, and proves to be a singular species. The flowers are borne in pairs, the sepals and petals creamy white, long and narrow, very closely resembling each other; the labellum is small, clear yellow. (*Bot. Mag.*, 4937.)

163. *METHONICA VIRESCENS* (Syn. *Gloriosa virescens*). Nat. Ord. *Uvulariæ*.—An inhabitant of several districts, widely separated, in Africa, having been found in Congo, Senegal, Natal, and also Madagascar. This plant differs but slightly from an allied species, well known to gardeners as *Gloriosa superba*, to which the flowers of the present species have much resemblance in colour and form, although rather larger, and more showy. The leaves, however, are smaller. (*Bot. Mag.*, 4938.)

164. *SALVIA PORPHYRATA*. Nat. Ord. *Labiata*.—A very pretty *Salvia*, which, although not quite hardy, will prove a useful bedding plant. The flowers are produced copiously, in whorls of from four to six flowers in each, on a spike of about nine inches in length, of a brilliant scarlet. The plant is of a dwarf habit, and neat in appearance, the leaves closely resembling those of the common Ground Ivy (*Glechoma hederacea*). Its native country is unknown. It is a species which, when more extensively known, will be much prized as a bedding plant. (*Bot. Mag.*, 4939.)

165. *BIOTA MELDENSIS*.—A new hybrid *Arbor Vitæ*, raised in France by M. Quetier, and said to be between the common *Arbor Vitæ* and a Red Cedar. It appears to possess a fine pyramidal habit. (*Gard. Chron.*, 182.)

166. *AMARANTHUS ALBUS*. Nat. Ord. *Amaranthaceæ*.—A variety with white stems, brought into notice by Captain Hall, of Berwick-upon-Tweed, who has forwarded seeds to the Horticultural Society. The plant grows to the height of about two feet, flowers pale green, leaves ovate, stems much branched, glabrous, and very white. It is used as a vegetable, and will, from the high testimonials we have seen, no doubt become an esteemed addition to the table, the leaves having the flavour of spinach, and the stems, being tender and succulent, are said to resemble asparagus.

QUESTIONS, ANSWERS, AND REMARKS.

AUSTRALIAN GRASS TREE AND GERANIUMS.—I have been interested in a narrative given by a missionary labouring in Australia. He says that on one occasion, journeying towards the diggings at Steylitz, he met with a plant or vegetable named the *Grass-tree*, which, according to his description, I do not remember being noticed in any of our catalogues. The following is an abstract, *verbatim*:—"Presently we ascended a mountain range, large patches of which were covered with fragments of quartz, indications of the golden ore which lay hidden beneath the surface to reward the digger's toil. The top of this range was covered with the remarkable Grass-tree, of which I do not remember previously to have seen any specimen; the trunk varies from one to four feet in height, and is crowned with a thick tuft of long fine grass, which droops gracefully towards the ground; the whole is surmounted by a thick stem, like a huge bulrush,

eight and sometimes ten feet in height. Here we found a great variety of wild flowers, and among them several kinds of *Geraniums*." If any contributor to the *Cabinet* can give further information about the above apparently interesting species of plants, it will perhaps add somewhat to the knowledge of those who are interested in the pursuit of novelties connected with the science of horticulture, especially if at the same time the name of the plant and the genus to which it belongs is given. The narrator of the above also adds, that among the variety of wild flowers there growing he found several kinds of *Geraniums*. *Quære*—have there ever been any of the *Geranium* tribe imported from Australia? Information on this subject may also be of value.—*T. R.* [We have no doubt the statement respecting *Geraniums* is founded in error.—*Ed.*]

BLOOMING PLANTS IN WINTER.—Please to inform me whether a north-north-west aspect, by means of constant good heating, would keep plants well and in good bloom through the winter.—*H. L.* [Plants require abundance of light; if the situation be not too shady, you may succeed.—*Ed.*]

WORMS ON GRASS.—A Subscriber wishes to know the best method for destroying worms on a lawn. [Roll the grass twice, and then water it with lime-water, at the rate of one pint of lime to ten gallons of water. This operation twice performed will destroy every worm without injuring the grass. Or, mix a quarter of an ounce of corrosive sublimate with three gallons of water, which is quite as efficacious.—*Ed.*]

CHLIDANTHUS FRAGRANS A HARDY BULB.—This elegant and fragrant flower is of as easy culture as the *Narcissus*. I first tried it in the stove, and afterwards the frame, but high temperature has the effect of fretting the bulb into offsets, and not of enlarging it. Afterwards I planted it under a south wall, in a bed eighteen inches deep, in the soil in which I grow a collection of *Amaryllis* (turfy loam, sand, and decayed vegetable matter), planting the bulbs six inches deep, and protecting them during winter by mulching. In April following they began to show themselves; I was satisfied they were getting stronger, as very few offsets appeared, and the leaves were more sturdily. I again lifted them undisturbed, but not a bulb threw up a scape, and after they had made most vigorous foliage, and gradually died off, I took up the plants in November, when some very fine bulbs were obtained, nearly as large as *Sprekelia formosissima*, or four times larger than the original bulb. I potted seven bulbs, four of which flowered in the greenhouse in April. The remainder of the bulbs I planted out as before, and one of them in the end of May threw up its scape, and flowered.

LILIUM GIGANTEUM.—A magnificent specimen of this plant has lately bloomed in the garden of the Hon. and Rev. J. T. Boscawen, Lamorran Rectory, near Truro. It appears to be the finest specimen that has yet flowered in Europe, and is one of four offsets taken in November 1854, from a plant which bloomed out of doors in July of that year. The bulb was unprotected in winter, although the thermometer was sometimes down as low as 10° in Cornwall. It has also borne the springs of 1855 and 1856, and, the present flowering season, has attained a height of twelve feet, having a spike of eighteen flowers, each measuring six inches across at the mouth, yielding a beautiful perfume. There can be but little doubt, with these facts before us, of the hardiness of this Prince of Lilies, and we hope others may be induced to try the experiment in other localities.

LILIUM GIGANTEUM IN NORTH STAFFORDSHIRE.—This extraordinary plant flowered splendidly in July last at Biddulph Grange. It was planted in the open border, and has borne the last three severe winters without any other protection than a wooden shutter, intended to throw off superfluous moisture; and even this precaution was probably superfluous. The flowering stem made its appearance in April, and rose to the height of eight or nine feet, crowned by a truss of fifteen blossoms, which continued fully ten days in perfection. They were exquisitely fragrant, and first expanded in the evening, a circumstance that might have escaped notice had not the delicious odour—perceptible at the distance of thirty yards—attracted attention to the spot where the plant grew. The flower-stem measured three inches in circumference at the height of a yard from the ground, and was as stiff as a flag-staff. It is still (September 10) perfectly green and fresh, but, instead of flowers, is now surmounted by seed-pods as large as those of the common Bean. The plant had been received from Messrs. Veitch, of Chelsea. Fine as was this specimen, it seems to have been inferior to the one that flowered in Mr.

Boscawen's garden, near Truro, in Cornwall; but this was probably owing in a great measure to the circumstance of the Staffordshire plant having been removed last autumn, which of course could not be done without great injury to its roots.—*J. B., in Gard. Chron.*

PLANS OF GREENHOUSES, ETC.—Allow me to suggest your introducing some plans for greenhouses, etc., of simple architectural exterior, in the Elizabethan or Gothic style, suited to a country house, and adjoining the dwelling. As this would, no doubt, prove to many a novel and useful variety to the information contained in your highly approved work, the *Floricultural Cabinet* (to which I have been for several years a constant subscriber), I shall be glad if the suggestion be adopted.—*H. L.* [We shall shortly fall in with this useful suggestion.—*Ed.*]

ON GRAFTING THE ACACIA.—I have often lamented to see the dwarf, delicate, but still beautiful, species of *Acacia* struggling for life among their more hardy and robust brethren, and especially when the desirable object of placing them in a situation calculated to show their humble beauties to advantage, and impart to them a more hardy and robust constitution, is so easily obtained by grafting. This operation may be performed in almost any situation. Perhaps the best stock would be *Acacia affinis*, owing to its rapid growth, and to its being hardier than any of the rest. By choosing a strong stock, and planting it out of doors in the early part of May, and then, as soon as it had taken root, grafting it, cutting it down to within a few eyes of each graft, or, if it can be conveniently done, inarching it, a fine tree would be formed in a very short time. The scions may be put on of almost any size, even a large plant. Smaller plants may be grafted or inarched either in the stove or greenhouse. The plants that are grafted out of doors I would recommend to be potted in the autumn, in order to give them a little protection in winter, again planting them out in spring; and by continuing this system for two or three years, the grafts will become fairly established, when they may be left out all winter, with a good covering of mats in frosty weather. I trust the above hints may be thought worthy the attention of the numerous cultivators of this beautiful genus.—*S. F.*

VICTORIA REGIA.—My *Victoria Regia* is still producing very fine leaves and flowers. I planted it out on the 30th of April in the usual manner, in a tank twenty-two feet square, heated by hot water; I kept the temperature of the water from 85° to 90°. The soil I planted the *Victoria* in is good turfy loam mixed with rough sand. After it was planted about ten days, it made leaves four feet in diameter, and in a week or so it flourished until its leaves measured six feet nine inches across. The largest flower it has produced measures eleven inches and a half in diameter; it is now flowering very finely.—*W. May, Rugeley.*

THE SAVINE.—*Juniperus Sabina* is a splendid lawn plant, when left to take its natural growth in an open space and kindly soil. A plant on my lawn, twenty-five years old, measures twenty-two yards in circumference. Its branches radiate from a single stem, which is invisible in the centre, feathering all round, without gap or blemish, down to the grass, and rising only about three feet in the middle. It is at all times a pleasing object; but in the spring, when it has put forth its tender shoots, or in the autumn, when bespangled with dew, it is particularly beautiful.—*M. R. Townshend.*

PROPAGATION BY LEAVES.—Some years ago I first tried to raise bulbs of a Cape Ornithogalum, by setting a cutting of a leaf. The leaf was cut off just below the surface of the earth, in an early stage of its growth, before the flower-stalk had begun to rise, and it was set in the earth near the edge of the pot in which the mother plant was growing, and so left to its fate. The leaf continued quite fresh, and on examination (when the bulb was flowering), a number of young bulbs and radical fibres were found adhering to it. They appeared to have been formed by the return of the sap which had nourished the leaf. Thereupon two or three leaves more were taken off and placed in like situations, but they turned yellow, and died without producing any bulbs. It appeared to me then, and it was confirmed by subsequent experience, that, in order to obtain a satisfactory result, the leaf must be taken off while the plant is advancing in growth. I found it easy thus to multiply some bulbs that did not willingly produce offsets. I afterwards tried, without cutting the leaf off, to make an oblique incision in it under ground, and in some cases just above ground; attempting, in fact, to raise

bulbs by layering the leaf. This attempt was also successful; and some young bulbs were formed on the edge of the cut above ground, as well as below. I tried cuttings of the stem of some species of *Lilium*, and obtained bulbs at the axil of the leaf, as well as from the scales of the bulb; and that practice has been since much resorted to by gardeners, though I believe it originated with me. I raised a great number of bulbs of the little plant which has been successively called *Massonia*, *Seilla*, and *Hyacinthus corymbosus*, by setting a pot full of its leaves, and placing a bell-glass over them for a short time. A bulb was obtained with equal facility from a leaf of a rare species of *Eucomis*; and experiments with the leaves of *Lachnolalia* were generally successful. I apprehend that all liliaceous bulbs may be thus propagated; but the more fleshy the leaf, the more easily the object will be attained.—*W. H.*

ITA PALM.—According to Martius, the fine Palm, Moriche (*Mauritia flexuosa*), Quiteve, or Ita Palm belongs, as well as Calamus, to the group of *Lepidocarpaceæ* or *Coryphineæ*. Linnæus has described it very imperfectly, as he erroneously considers it to be leafless. The trunk grows as high as twenty feet; but it probably requires from one hundred and twenty to one hundred and fifty years to reach this height. The *Mauritia* extends high up on the declivity of the Duida, north of the Esmeralda mission, where I have found it in great beauty. It forms, in moist places, fine groups of a fresh shining verdure, which reminds us of that of our Alder groves. The trees preserve the moisture of the ground by their shade, and hence the Indians say that the *Mauritia* draws the water round its roots by a mysterious attraction. By a somewhat similar theory, they advise that serpents should not be killed, because the destruction of the serpents and the drying-up of the pools or lagunes accompany each other; thus the untutored child of nature confounds cause and effect. Gumilla terms the *Mauritia flexuosa* of the Gauranis the tree of life—arbol de la vida. It grows in the mountains of Rouaima, east of the sources of the Orinoco, as high as four thousand (4263 English) feet.—*Humboldt's Aspects of Nature.*

SHRUBBY CALCEOLARIAS.—During our visits to the metropolitan nurseries, we have noticed some new shrubby Calceolarias possessing considerable merit, and to which it is desirable to draw the attention of our readers; the following are some of the best. Golden Chain, a good yellow. Sulphurea splendens, a fine light yellow flower, of good form and habit, excellent for bedding out. Ethel Newcome; this variety was raised by Messrs. Henderson, of the Wellington Road Nursery; it is a profuse bloomer and of good dwarf habit, deep golden yellow, producing its blossoms in large clusters throughout the entire season. Ajax, a fine large flower, rich brown and crimson, with an admixture of yellow. Norma, one of the largest flowers in this class of Calceolarias, free blooming, of vigorous habit, and very conspicuous, the colour a fine orange-crimson. General Canrobert, a large flower, very distinct and fine, plum colour. Harlequin, a small flower, of close and compact habit, dull orange, densely covered with dark brown spots. Purity, white, large trusses of well-formed flowers, excellent habit. Little Dorrit, a very attractive small-flowered variety, crimson shaded with orange, cap yellow. Beauty of Montreal, a small flower, brilliant crimson, good compact habit, a very effective and excellent bedding variety. Maggiore, flowers large, of a rich ruby crimson, with a conspicuous yellow cap, fine noble habit. Minnie, a beautiful and neat variety for bedding, very profuse in flower, compact, and with bright crimson blossoms. Shirley, fine habit and free flowerer, orange-buff, large. Rosy Morn, large, bright orange and red, shaded. Wildfire, large and very showy, fine free growth, bright dazzling orange and crimson, shaded. We noticed many other seedlings of considerable merit, but the above are the most distinct and best formed, both in habit and flower.

THE HYACINTH.—There is hardly a flower in cultivation so generally a favourite as the Hyacinth, and certainly not one which so gratefully repays the attention bestowed upon it. There is not a medium capable of retaining moisture but it will grow in, and it will give us as good a bloom when planted in wet sand as it will in the richest compost. Many people ought to be thankful for this spring visitor, from those whose delicate hands put the finish to the beautiful stands which grace the drawing-room, to the salamander-like men who, in a heat that would broil a steak, blow the thousands of glasses employed to grow them in water. There is not a smoky hole in the most confined manufacturing town in which the Hyacinth will not bloom, if allowed moisture

of some kind in which to lengthen its silvery roots. If we calculated by the means required for its growth, instead of the price of a root, it might truly be called the poor man's flower. There is scarcely an individual who is permitted to live in daylight, but may indulge himself with two or three, if he be fond of flowers, and they will afford gratification till the bloom is over. Let everybody who can raise three flower-pots, or three hyacinth glasses, buy a bulb of each colour, and they will have flowers—aye, if they grow them in a smoky attic or a still more smoky kitchen. The following is a list of some of the best varieties, and can be recommended with confidence. *Double Red*.—

*Bouquet Royal, deep blush pink, dark centre; *Grootvorst, light blush, extra fine; Honneur d'Amsterdam, pink, good; Lord Wellington, waxy pink, extra fine truss; *Milton, large red; *Waterloo, extra fine, red. *Double White*.—*La Tour d'Auvergne, extra fine, pure white; La Virginité, very dwarf, fine blush white; Miss Kitty, very large bells, white, violet centre; *Prince of Waterloo, white bluish eye, extra fine; Queen of England, pure white, bright pink eye, very pretty; Venus, full double, pure white.

Double Blue.—*Alamode, light porcelain blue, with purple stripes; Comte de St. Priest, pale porcelain blue, extra; General Antiuk, fine light porcelain blue, with a purple centre, fine; Globe Terrestre, very large bells, pale blue; *Laurens Koster, dark violet, extra fine; Madame Marmont, very double, pale lavender; Pourpre Superbe, dark purple, tipped with green. *Double Yellow*.—*Bouquet d'Orange, orange and pink; Goethe, fine yellow; Heroine, fine citron-yellow; Jaune Suprême, large fine yellow, extra. *Single Red*.—*Aimable Rosette, pretty delicate pink; Diebitsch Sabalskansky, bright deep red, fine; La Baleine, blush, large bells; *Lord Wellington, extra large, rose; Madame Hodson, extra fine, pink, close truss; *Mrs. Beecher Stowe, bright rosy pink, large truss; *Norma, large pink, extra fine. *Single White*.—*Bridal Bouquet, pure white, fine truss; *Grand Vainqueur, pure white, fine; Grand Vedette, snowy white, large bells; Madame Talleyrand, pure white, fine large truss; Richardson, rosy white, large bells. *Single Blue*.—*Baron van Tuyll, purple-blue, large truss; Emicus, dark blue, light centre, fine truss; Grand Vedette, light porcelain, extra fine; *Robinson, porcelain blue, mottled, extra fine; *William the First, dark purple, close truss. *Single Yellow*.—Fleur d'Or, good yellow; *Heroine, pale yellow, tipped with green, fine truss, extra; *King of Holland, fine orange-yellow; Vainqueur, splendid yellow. Those varieties to which an asterisk is prefixed are most adapted for cultivation in water.—*The Gardener*.

ANOMOTHECA CRUENTA.—This is a bulb well adapted for planting in mass, a fact which is not sufficiently known. I place four or five bulbs in a pot, planting them in equal parts of rich loam and sand, with a little leaf-mould, setting them in a frame until April, when I turn them out into a bed of the same compost, where they flower beautifully from June until the approach of winter. It is well to see to the cutting out of seed-pods as they are formed, which adds vigour to the succeeding bloom. On the appearance of frost, I take them up and store away through winter, in perfectly dry sand. To increase them I prefer making offsets, although seed may be readily saved. It is a very desirable plant for small beds, or for the edging of larger ones. Few flowers are more attractive than the handsome crimson and scarlet ones of this favourite.—*W. Carter*.

VERNAL SCILLAS.—The spring-flowering Squills have many points to recommend them, although they are but seldom seen in cultivation. They are very dwarf, growing but three or four inches high, bearing generally flowers of a brilliant lively blue, and bearing company with Crocuses and such other pretty bulbs. They ought to be grown in every pretty garden, and do well as an edging for a bed. The following kinds are in cultivation:—*Scilla amena*, large light blue flowers, April and May. *S. bifolia*, two varieties, one white and another pink, April. *S. Siberica*, bright blue, April. *S. verna*, purplish blue, May. All of them are easily cultivated, and I was extremely pleased with a bed of them which I saw during the past spring in a cottager's garden near Wolverhampton.—*C. Carter*.

COTONEASTER MICROPHYLLA AS A HEDGE PLANT.—It has been stated that this is admirably adapted for covering rocky banks and walls. As, however, I do not remember ever seeing it recommended as a hedge plant, or used for that purpose except by myself, I may state that few, if any, plants are so well adapted for an ornamental and efficient

fence. Ten years ago I planted a hedge of it at the bottom of a sloping garden, about sixty yards long, by the side of a road, and about three feet and a half above its level; and for the last four years it has proved a sufficient protection against cattle, without rails. The only care required is to keep the plants clean, and their branches as they extend in the line of the fence, for a few years, with an annual dressing with the shears or switching-knife, when it has obtained the required size. My hedge is much admired by all who have seen it, being at all times a deep green, and enlivened in the depth of winter and spring with a profusion of scarlet berries, until it again becomes as white as a sheet with its innumerable blossoms, which during the day are literally covered with bees. Besides forming a good and neat fence, the branches hang down above the bank and completely cover it to the level of the road. Mice store the berries up in winter; but the mistletoe thrush is the only bird I have seen attracted by them.—*J. Gaitskell, in Gard. Chron.*

EARLY TULIPS.—The following beautiful varieties of single and double Tulips are highly recommended for their brilliant colours; rendering them a most attractive feature in the decoration of the greenhouse, flower-beds, or window during the earlier spring months, and as they all blossom early they thus afford an opportunity of clearing them out of the beds in time to turn out the usual bedding plants in May and June. *Single Early Tulips.*—Alba Regalis, white; Ardemus, dark red; Bride of Haarlem, red and white striped; Canarie Vogel, fine yellow; Cerise non rectifié, cherry and white; Cramoisis Royale, carmine; Claremond, rose and white flake; Dorothea Blanche, white and carmine; Duc van Tholl, yellow and red, sweet scented, early; Duc van Tholl, varieties—white, scarlet, yellow, rose, and gold striped; Globe de Reynaut, purple and white; Golden Prince, fine deep yellow; Grootmeester van Maltha, white and carmine; Marquise de Wessenrode, deep golden yellow and scarlet flake, fine. Pottelbakker, varieties—yellow, red striped, and white; Queen Victoria, white, fine; Rose Tendre, rose and white; Reine de Cerise, white and rose flake; Standard Silver, rose and white flake; Standard Gold, yellow and scarlet; Superintendent, purple and white flake; Thomas Moore, orange-buff; Vermilion Brilliant, splendid crimson and scarlet. *Double Early Tulips.*—Couronne Impériale, cherry and white flake; Duc van Tholl, red and yellow; Duke of York, orange and red; Epaulet d'Argent, rose and white; Gloria Solis, yellow and crimson; Jenny Lind, rosy purple; König's Kroon, crimson-red; La Candeur, white; Mariage de ma Fille, white and carmine striped; Paeony Gold, dark crimson; Paeony Rose, rosy crimson; Rex Rubrorum, crimson; Tournesol, scarlet and yellow; Yellow Roos, yellow.

EFFECT OF COLOURED LIGHT ON PLANTS.—During the early part of the spring of 1840, some experiments I was then pursuing on the chemical influence of solar light led me to the discovery of some extraordinary facts connected with the action of light on vegetation. It is scarcely necessary to explain that every beam of light proceeding from its solar source is a bundle of different-coloured rays, to the absorption or reflection of which we owe all that infinite diversity of colour which is one of the greatest charms of creation. These rays have been long known to possess different functions, and have hence been distinguished according to their supposed properties; the violet and blue being called the chemical rays, the green and yellow the luminous rays, and the red the calorific or heat-giving rays. These distinctions are not in accordance with the strict truth, but they are sufficiently so to suit my present purpose. The light which permeates coloured glasses partakes, to some considerable extent, of the character of the ray which corresponds with the glass in colour; thus, blue glass admits the blue or chemical rays, to the exclusion, or nearly so, of all the others; yellow glass admits only the permeation of the luminous rays, while red glass cuts off all but the heating rays, which pass it freely. This affords us a very easy method of growing plants under the influence of any particular light which may be desired. The fact to which I would particularly call attention is, that the yellow and red rays are destructive to germination, whereas, under the influence of violet, indigo, or blue light, the process is quickened in a most extraordinary manner. The experiment is very readily tried by covering a box in which seeds are sown with coloured glasses. The plants will grow most luxuriantly beneath glass of a blue character, but beneath the yellow and red glasses the natural process is entirely checked. Indeed, it will be found that at any period during the early

life of a plant, its growth may be checked by exposing it to the action of red or yellow light. Here we have the very extraordinary fact that that portion of the sun's light which produces the greatest impression on the organs of sight, and that also which diffuses warmth through the creation, are destructive to the first processes of vegetation. It is with much satisfaction that I find the results to which I have arrived corroborated by Dr. F. R. Horner, of Hull. In conclusion, I may be allowed to point out, that by studying the effect of these different rays, isolated and in different states of combination, we have the means of imitating the nature of any climate of which a plant may be the habitant. By blending the violet with the yellow light in certain proportions, we may artificially produce the light which shines on "Syria's land of roses;" by uniting with these the red light, we may produce effects on our island soil similar to those seen on the arid wilds over which "the acacia waves her yellow hair;" and by isolating the violet rays we may, to some extent, imitate the climate of the frigid zone.—*Professor Hunt.*

OBSERVATIONS ON FORCING HYACINTHS.—To make Hyacinths flower early in December, they should be planted the beginning of August, and the pot plunged, in the open air, to such a depth that they may be covered with mould to the extent of four inches. They should be taken out again about the middle or end of October, put in warm tan or sand in a hothouse, near the sashes, and kept moist. If treated in this manner, and kept moist and warm, they will not fail to flower about the beginning or middle of December. Many other sorts may be brought into flower about the beginning of January. Those forced Hyacinths which are intended to flower in February and March should be planted in September and October, or even about the middle of November, the pots being plunged in the open air, and covered with mould. A bed should be made at the beginning of January, consisting of horse-dung, four or five feet deep; it should remain in that state about a week, and then as much mould added as will cover the pots when they are sunk in it. The pots should be now all put in, and the sash raised four or five inches, to admit air both night and day, so that the steam generated by the heat may readily escape. This must not be neglected even during frosty weather, otherwise they will perish. During a severe frost it may be thought that admitting the air is quite unnecessary, but it should not be omitted, only hanging cloths over the opening.—*W. W.*

BUNYA-BUNYA.—Amongst the Australian productions exhibited at the Exposition Universelle at Paris last year, was one of the finest cones of the *Araucaria Bidwillii* Bunya-Bunya ever seen in Europe. It was sent by C. F. D. Parkinson, Esq., of Moreton Bay, New South Wales, who has since presented it to the Botanical Museum of the Royal Gardens at Kew. Sir William Hooker, in the *Journal of Botany*, gives the following interesting particulars, for which he was indebted to Mr. Parkinson. "This tree is deserving of more notice than any other growing in the northern districts of New South Wales; not perhaps because the quality of the wood may be superior to the other kinds of Pine, but because each tree belongs to some one individual of the aborigines. The Bunya-Bunya is of the Pine kind, and grows in scrubs, or ranges of hills or mountains. It is not known growing in a wild state further to the south than the range dividing the falls of the waters of the rivers Brisbane and Burnett; but in the Wide Bay District, in the twenty-seventh parallel, it grows very thickly over an extent of country, about thirty miles by twelve, which is in consequence called the 'Bunya-Bunya country.' The tree is easily distinguished, as it far outtops every other kind of tree in the scrub; and instead of the branches pointing downwards, as in the Moreton Bay Pine (*Araucaria Cunninghamii*), they grow straight out from the tree, or rather with a curve or inclination upwards. Its height is immense; Leichardt mentions their being one hundred and sixty feet high before there were any branches; for in its wild state the branches only grow near the top of the tree, owing to the want of light in the scrub, but if planted out in an open space they feather quite to the ground. The wood can be used for the same purposes as Pine, and is rather more durable; it makes excellent sheep-hurdles. The leaves are of a rich dark green, and sharp-pointed, so much so as to be prickly. The cone, or fruit, is very large, and grows on the extreme tip of the tree. This fruit is only plentiful every third year. In appearance it is like an immense fir-cone, and is, before it is quite ripe, of a beautiful green colour. Measurement of

the cone sent to the great French Exhibition:—twelve inches in length; twenty-two inches round the broadest part, transversely; nineteen inches and a half round in the narrowest part. The shape is a depressed globe. When the proper season arrives, the natives assemble in great numbers, from very great distances all around, for the purpose of eating the fruit, which they generally roast. Each tribe has its own peculiar set of trees, and each family its own allotment among them. These are handed down from generation to generation with the greatest exactness, and if any one is found in a tree not belonging to him, a fight, or 'pullen pullen,' is the inevitable consequence. This is believed to be the only hereditary personal property possessed by the aborigines; it is therefore generally respected, and this makes the 'Bunya-Bunya' interesting."

CHINESE PRIMROSE.—To have fine blooming plants that will continue in flower through the whole of the winter months, I proceed as follows:—To obtain strong plants, the seed should be sown not later than the end of April, in a well-drained pan, in a light sandy soil, and put into a cool frame, as near the glass as possible. When large enough to be pricked off into store pans, the young seedlings should be allowed an inch between each plant; when that space has been filled, let them be potted singly into three-inch pots, and as the pots become filled with roots, shift into a size larger pot, giving them their final shift into six-inch pots early in September. The compost in which I have found these plants to thrive best has been equal parts turfy loam and leaf-mould, and a little sharp sand. While growing, a cool pit or frame suits them best; admit plenty of air, and be careful not to over-water them. Treated in this manner the plants will bloom by the middle of November, and will continue in flower through the whole of the winter; to be seen to advantage they should be moved to the greenhouse.—*E. Loud.*

VICTORIA REGIA.—I have had this noble Water Lily remarkably fine this season. I planted it out on the 30th of April in the usual manner, in a mixture of loam and river-sand, in a brick tank heated with hot water. The tank is twenty-two feet square. The plant had at first only three leaves out on it, which were four inches in diameter; it then made from three to four leaves each week, and increased rapidly in size, until now it has six fine leaves on it in the most perfect condition imaginable, each measuring from six feet six to six feet nine inches in diameter. It is expected to produce flowers in a few days. Hearing that the Victoria has not succeeded very well in the neighbourhood of London this year has induced me to send you this notice, and as soon as the plant shall have flowered farther particulars respecting it shall be furnished.—*W. May, Hawkesyard, in Gard. Chron.*

TO DESTROY ANTS.—A singular discovery has been made in France, by a gentleman named Du Ribert, of a new and infallible method of getting rid of these pests of the garden. It is stated that, being much annoyed at the prodigious number of these creatures, he attempted to kill them with boiling water, but his plants being generally covered with them, this plan would not apply. He next scattered a few handfuls of guano over a basket of plants, and curious to relate, the effect of the application of this manure in a powdered form was eminently successful, and his garden was soon cleared. The same experiment has been practised in this country, and with the most efficacious results. We hope to hear from those of our subscribers who may be induced to try this simple plan.

WELLINGTONIA GIGANTEA.—Great numbers of the young plants of this most interesting Conifer, which have been grown in pots, have perished, while those which have been planted out have succeeded well. The plant appears to flourish best when grown in burnt clay with a mixture of charred roots or leaves; thus treated it does well in the open air. Doctor Lindley recommends basket culture, which consists in planting young specimens in a small wicker basket, which is plunged in the ground, and as the roots emerge through the sides the whole is carefully taken up and transferred to a larger size, the smaller becoming decomposed; thus the cramped roots resulting from small pot culture are avoided, and doubtless the plants will succeed to entire satisfaction.

AN ANCIENT OAK.—One of the oldest trees in Europe was struck by lightning in the month of July last. This tree, an oak, had been planted near Châtillon-sur-Seine, Côte d'Or, in 1070, by a Count of Champagne. The oak, which had therefore existed 786 years, measured seven and a half metres in circumference, and had produced acorns up to 1830.



PRINCE ALBERT.

The Floricultural Cabinet.

NOVEMBER, 1856.

ILLUSTRATION.

ROSE PRINCE ALBERT (BOURBON).

THE Rose of which the annexed is a faithful representation belongs to the Bourbon class, and we are indebted to Messrs. Paul, the eminent cultivators of this charming class, for its introduction to this country, being brought from Fontenay-aux-Roses, in the neighbourhood of Paris, where it was raised. Prince Albert is a Rose possessed of some admirable points, which make it a very desirable acquisition, being a very free flowering kind, blooming in large clusters from June to November; its habit is dwarf and compact, the shoots are short and stiff, the foliage rather large. The form and the brilliancy of colour of this flower make it a conspicuous object in a collection, and from its habit it may become valuable as a bedding kind, or for masses. A close pruning is advantageous to this class in inducing fine blooms.

REMARKS ON PENTAS CARNEA.

BY A PRACTITIONER.

THE Pentas is deserving of our notice from its long period of blooming, combined with excellent habit. Few plants are more easy of cultivation, while its delicate pink flowers are very pretty and attractive. The soil most adapted for its successful culture is a mixture of equal parts turfy loam, peat, and well-rotted cow-dung; the former broken small, and the latter finely sifted: the addition of a few small pieces of broken charcoal and a little river sand is also beneficial. The proper time for increasing by cuttings is at the end of spring. They should be taken off when two or three inches long, with a bit of the old wood attached. These should be inserted in a well-drained pot filled with a light sandy compost, and afterwards placed in a close hotbed, frame, or pit where a warm atmosphere and a little bottom heat can be obtained; in this situation, with due regard to watering, shading, etc., in a few weeks the cuttings will become well rooted, when they may be potted singly into three or

four inch pots, and replaced in a warm situation as near the glass as possible. A temperature of from 60° to 65° will suit them well. With favourable weather a gradual increase of air should be given, shading slightly in bright weather, if necessary, and syringing overhead on sunny afternoons. As they advance in growth, the principal shoots should be stopped, and the plants repotted as the pots become filled with roots, observing that they should be topped a few days before or after potting, so as not to check the progress of roots and branches at one time. If cuttings are rooted early in spring, by July they should be good compact bushes, in nine or ten inch pots; if now large enough to suit the purpose of the cultivator, they may be allowed to flower, by discontinuing the stopping. As the flower-shoots advance, a little attention is requisite to tying-out, or otherwise supporting them in an erect position. When in bloom the plants may, if required, be removed to a cool situation, where, if protected from cold winds, they will continue a long time in beauty. When blooming is past, I place them in a cool dry house, and during winter give only sufficient water to keep the foliage in health; towards February or March, or earlier if required, I remove them to a warm house, previously pruning the branches into a compact form. When they have started into growth the roots should be examined, and, if necessary, a shift given into larger pots. Stopping may now be continued only as long as it may be desirable to increase the size of the plant, which will be in flower in six or seven weeks after the last stop. If pruned back after the flowers are faded, a second and third crop of blossoms may be obtained during the summer, and on the approach of autumn the plants should be thrown away, in order to make room for more young and vigorous stock.

By the above method the latter requirement may be readily supplied.

ON THE TREATMENT OF SPARMANNIA AFRICANA.

BY THOMAS HUGHES, ESQ., LANCASTER.

SOMETIMES we see large and otherwise beautiful specimens of this handsome conservatory plant suffering from improper treatment. The want of luxuriance in this plant is, in my judgment, attributable to two causes: on the one hand, to confinement of the roots, which disposes the plant to produce a greater quantity of flowers than it can support, without robbing a considerable portion of the nutriment sent up by the rootlets, and necessary for the completion of the usual growth in the branches; and on the other, too poor compost, which induces the plant to throw out a quantity of stunted, half-sized, and half-beautiful flowers, without affording the required strength to the branches.

Whether or not this deficiency be referable to either of the causes I have pointed out I am not fully prepared to state, but I am certain

that a good-sized plant now under my eye grew and flowered remarkably well for the first four or five years of its growth, and was every spring greatly admired by all who saw it; after this a decline in the growth of the wood and luxuriance of the foliage, without any diminution in flowers, size excepted, took place, which rendered the plant unsightly instead of ornamental, for it always after appeared sickly.

In this state it remained two years. I potted it as usual, but, perceiving no improvement, I made an examination into the cause, which I commenced by turning the root-ball out of the tub, when, to my great surprise, I could not discover any defect in the roots, or want of strength in the soil; from which it appeared clear to me that the only means of restoring the health of my plant must be by enlarging the tub, and reshifting it in new compost, composed of two parts of strong, open, turfy loam to one of well-decomposed dung, carefully incorporated. This I did early in the spring of 1854, and I had last season the satisfaction of seeing my favourite plant in good health, clothed with a luxuriance of foliage such as I never expected to see gracing its noble head, and affording an ample background to its large umbels of nodding blossoms. The number of umbels this season I did not count, but they were very numerous; and the white petals of each flower, with the purple tips, resembling anthers, contrasted with its large cordate pendulous foliage, produced an appearance even more splendid than on former occasions. The plant now spoken of has generally stood in a rather light situation, and I am disposed to think, from what I see of the habits of some younger plants of this species, that they do best in a light situation.

If I had not observed very particular caution in administering water to my old plant, I should have attributed its ill health at once to want of due attention in this respect, but I was well aware this could not be the case; indeed the healthy and clean condition of the roots convinced me at once to the contrary. I have not an indiscriminate mode of watering, as is too often the case, but I water my plants as experience teaches me they want it, and I always endeavoured to keep the *Sparmannia* rather dry during winter, and watered it rather copiously during summer, and more particularly in the growing season. I also washed its branches now and then with clean water from the syringe, which kept it clean and free from insects. I propagate it in sand, or sand and loam mixed, with little trouble. After inserting the cuttings, I place the pot under a hand-glass in a little bottom-heat. I water them well at first, after which I do not, without they get very dry, give any more until rooted and ready for potting off, when I give a little; the young plants I bring on in a frame for awhile, from which I harden them by degrees to the greenhouse. During summer I give them frequent shifts, but more particularly in spring. The plants grow extremely well in the above compost, and will no doubt amply repay my care and attention in a season or two by an abundance of their singularly pretty flowers and fine foliage.

A FEW WORDS ON ROSES.

BY A NOBLEMAN'S FLOWER GARDENER.

It is almost universally acknowledged that the Rose is the queen of flowers, and that none are more attractive—none better reward the attention of the grower. The Rose is a native of all the four quarters of the globe—Europe, Asia, Africa, and America; but I am not aware that any of this genus have yet been found in Australia. The number of Roses is almost incredible, more than one hundred distinct species having already been described, while near three thousand varieties are named for sale in the various nursery establishments of England and France. Amid such a variety, all that I can do is to give a short description of the different kinds of Roses grown with us, and a few particulars of the more remarkable species. To commence, the commonest and best known is the Provence Rose (*Rosa centifolia*), a native of the eastern division of the Caucasus, from whence it appears to have been introduced at a very early period. Some of its varieties are very fragrant and handsome kinds, all distinguished by their close cabbage-like form (hence they are sometimes designated Cabbage Roses), the inward curving of their petals, and their slender footstalks, which give a peculiar drooping appearance to the full-blown flowers. The Moss Roses are all varieties of the Provence or Cabbage Rose. All these may be grafted standard high, on briars of the common wayside Dog Rose; a richly manured ground and open situation suit them best. The French or Provins Rose (*Rosa gallica*) is an erect-growing compact plant, with open flat flowers of considerable size, borne on stiff erect flower-stalks, forming a great contrast to the former species. It is found wild in France, and is cultivated on a large scale near the small town of Provins (department Seine-et-Marne), as well as at Fontenay-aux-Roses, near Paris, for making the well-known conserve of Roses. More than one hundred varieties are grown, but seldom or ever as standards, and they do not require a rich soil. The Damask or Perpetual Rose (*Rosa damascena*) is known by the large size of its prickles, the greenness of its bark, its reflexed sepals, and elongated fruit; one of the most attractive of this class is Lee's Perpetual, or the Rose du Roí. This species is very fragrant, and continues in bloom until November. As the present class are of very luxuriant growth, and produce abundance of flowers, they should be grown in very rich soil, and their shoots not cut in. The Chinese or Monthly Rose (*Rosa indica*) is the parent of another large family, comprising more than two hundred varieties and hybrids; the most attractive of these being the Tea-scented and the Noisettes. The Tea-scented Roses are delicate little plants, with large-sized drooping flowers, supposed to be hybrids between the Common and the Yellow China Rose; these are rather tender, and should be grown against a south wall, in a raised border, composed of equal parts of vegetable mould,

light loam, and sand. Many growers take them up in November, and keep the roots in a pot in the greenhouse until spring, when they are again planted out. Noisettes are hybrids between the China and Musk Roses, raised by M. Philip Noisette, at Charlestown, in North America. This sort is very hardy, a very abundant bloomer (as many as sixty or eighty flowers being produced in a cluster), and are well adapted for standard and for pillar Roses. Climbing Roses are of four different kinds—Ayrshire, Evergreen, Cluster-flowered, and the Boursault. The first are all varieties of *Rosa arvensis*, a trailing plant, which, when left on the ground, throws out roots at every joint; they are climbers by elongation, stretching themselves upwards through a mass of hedges and bushes, and covering them with flowers. The branches are slender and feeble, and, if left without support, form a tangled mass; they grow vigorously, and will in some seasons make shoots twenty feet long. The Evergreen Rose (*Rosa sempervirens*) is from the south of Europe, and much resembles the Ayrshire in its flowers, differing, however, in the leaf, which is leathery, of more substance, smooth, and evergreen, and does not make such vigorous shoots; they are consequently not such good climbers as the Ayrshire, but more valuable, as undergrowth, for covering the ground in shrubberies, as they will flower freely even under the shade and drip of trees; the shoots should be pegged down over the ground they are intended to cover, at the joints, which will throw out roots, and the whole grow well. A sloping band, opposite a drawing-room window, covered thus has a beautiful appearance. Grafted as dwarf standards they look well, the shoots descending all round and forming a cone or pyramid. The Many-flowered or Cluster Rose (*Rosa multiflora*) is a beautiful plant, bearing large clusters of Roses, sometimes more than fifty in a cluster, and as many as two thousand have been counted on a plant. The Seven Sisters' Rose (*Rosa multiflora Grevillei*) is a variety of this species. The Boursault Rose is generally considered by botanists to be another variety of *R. multiflora*, but it differs from that species in several points. It is a hard-wooded durable Rose, producing abundance of flowers, and of free growth; the shoots, which are of a purplish red, and almost without thorns, being often fifteen feet long in one season. The flowers appear very early, and are known by their reticulated petals. All these Roses may be made to form beautiful objects on a lawn by training them up parasol wires, or a pyramid. Climbing Roses may also be trained over trellis-work, or up the trunks of trees. Musk Roses (*Rosa moschata*) form another family, though not a numerous one; they have very long slender branches, which are of themselves unable to support their large bunches of blossoms, and do best trained against a wall. They never require pruning, except to cut out the dead wood, the flowers being produced at the extremity of the shoots. The Banksian Roses (*Rosa Banksiana*), of two kinds, one with buff flowers, and the other white; the Macartney Roses (*Rosa bracteata* and *microphylla*), with some others, are natives of China, consequently

rather tender in England, requiring a little protection in severe weather; they do well against a wall. The Alpine Rose (*Rosa alpina*), of which the varieties are very numerous, the American Yellow Rose (*Rosa lutescens*), and the Scotch Rose (*Rosa spinosissima*), of which there is a multitude of varieties, are hardy early-blooming sorts, which grow in nearly all soils and situations. The Double Yellow Rose (*Rosa sulphurea*) is more difficult to manage, and we meet with many complaints of its not flowering; it has large drooping flowers, resembling the Cabbage Rose, and is a native of the East. It should be grown in an open airy situation, in a light free soil, and should have plenty of light and air. It requires to be well supplied with water during the flowering season, and care should be taken to have the soil well drained. If trained against a wall, it should have a northern or eastern exposure, and the plant does best without pruning. It will also flower freely if grafted on the Musk cluster, or some say on the Common China Rose. There are many other Roses not yet included in my enumeration, the best known of which are the White Rose (*Rosa alba*), with its numerous varieties; the Yellow Austrian (*Rosa lutea*), which has the petals scarlet above and yellow beneath; the Sweet Briar or Eglantine (*Rosa rubiginosa*), with its very numerous varieties; the Dog Rose or Briar (*Rosa canina*), common in the hedges of England; the dark crimson China Rose (*Rosa semperflorens*); and the Fairy Rose (*Rosa Lawrenceana*). To these I may add the Isle de Bourbon class (*Rosa Bourboniana*), which have very beautiful, large, flat flowers, with rich velvet-like petals, much darker inside than out. They flower in autumn, and grow best in dry sandy soils, unless grafted on the Dog Rose, when they should be manured like other standards.

ON THE GENERAL MANAGEMENT OF GREENHOUSE PLANTS.

BY CLERICUS.

A GREENHOUSE is, properly speaking, an erection for the preservation of plants from frost in the winter months, and the number of different families of plants which may be kept in such a house, with proper management, is very great. The following observations are intended as an outline for the general treatment of such plants. First as to watering: this element, so essential to the growth of the plant, should never be administered indiscriminately, it being quite as objectionable to give too much as too little, and where there is a mixed collection, some will be found to require much more frequent attention in this respect than others. Many plants are lost through an excess of wet, especially where they are supplied with saucers for the pots, and those who are very fastidious about the cleanliness of the stage run great risk from this cause.

It is well to examine the roots of the plants occasionally, turning out the balls of earth to see if they be matted round the outside, in which case repotting will be necessary, especially if in a growing state, plants in that condition requiring this more than those at rest, which should at no time be excited until they begin to push; moreover, when a plant is set with blooming buds, and about to take its rest, until these swell, by the sudden excitement of being repotted or through increased heat, too much water, etc., the flower-buds are blighted, for the germs of leaves and incipient branches, which are at liberty to develop themselves freely, take up the growth. It will therefore appear that the best time to examine into the state of the roots is as soon as growth manifests itself, or when the flowers are going off. For such plants as are already established, once in a season will mostly be sufficient for repotting; in other cases it will require to be done as often as the pot becomes filled with fibres to the interior circumference. Another point of importance in promoting the appearance of plants is to keep them turned round, which will prevent their growing all one way, towards the light, and becoming shabby on one side; this greatly improves the condition of a plant, and ought by no means to be neglected, as nothing looks worse than an ill-grown specimen. Over-crowding is also a similar evil to be avoided; light and air should be permitted access to them all round. In my opinion plants should have a free space round them equal to their own diameter; but space being often very valuable, this point can seldom be attained; it will always appear, however, that the more room allowed, the better will the plants grow. When the weather is mild, even in winter-time, if there be little rain, it is beneficial to expose the plants. In the case of deciduous plants whose leaves have dropped, water should be withheld, but when their buds swell again moisture may be supplied, and increased in proportion as the leaves and branches extend themselves. The shelves of stages should be provided with a groove running lengthwise, to carry off the water and prevent drip, and which should be kept free from dirt and damp.

The paths and floor also should be kept dry and clean; pavement or concrete is the best material, and should have provision made for the water to run off which may drop from the plants or be spilled in watering; damp floors often cause mildew, and are very detrimental to the health of plants. Many denizens of the greenhouse, such as Azaleas, Camellias, Cactuses, and others, are turned out of doors during summer, for the benefit of air and to harden their growth; at this time it is usual to supply their place with annuals, as Balsams, Cockscombs, Clintonias, Rhodanthe, Salpiglossis, and others. These have been sown in March in a hotbed, afterwards potted and brought into the house, to take the place of such as have been set out, and which ought never to be done previous to the middle of May, or much risk will be run from cold and frost; by the middle of September they are returned to the greenhouse. During the heat

of summer, when many fine plants are in flower, such as *Hoveas* *Chorozemas*, etc., it is beneficial, in prolonging their bloom, to shade them from bright sun; this is best effected by having a canvas roller-blind outside the house, or a thin calico blind inside. Shading, however, must be done judiciously, as the blind ought not to be drawn down an hour more than is absolutely necessary. All who put up a greenhouse ought to provide means for retaining the rain-water which falls on the roof, as this is the best water for plants; a pipe from the gutters may lead it to a tank or cistern behind the stage, where it will acquire the same temperature as the house, and in this state is best for applying to the plants; hard water fresh from a well or pump chills them, and is another cause of unhealthy plants. To warm a greenhouse in winter-time nothing is better than a system of hot-water pipes, combined with an economical boiler, such as those patented by Messrs. Weekes, of Chelsea. When the temperature descends below thirty-five degrees a fire should be lighted, if there be indications of frost. By the end of August, the plants should be turned out, and the entire erection cleaned; the glass well syringed or sponged, dirt washed off the walls and woodwork, and whitewashing and painting done, if necessary. Many persons at this time fumigate the house with tobacco, to destroy every appearance of green fly, and use sulphur for the red spider, so that everything is clean and tidy for the plants when they are brought back; previous to which the pots may be washed, the soil stirred at the surface, and such as require repotting should have the operation performed.

BRIEF REMARKS ON THE PINK.

BY MR. S. TAYLOR, WELLS.

PIKINGS struck under hand-glasses are the most ready and certain means of propagation, and good fresh loam with about one-fourth cow-dung, well decomposed and thoroughly incorporated, is the best compost to grow the Pink; too rich soil is unsuitable, making the colours run as it is termed. Wire-worms are very destructive pests, and before the above compost is used, it should be well turned over and examined, to see that none of those insects are in it. It is best to devote a bed entirely to this flower, which may be made a foot in depth. August is the best time for planting, and they should be put in nine inches apart, taking care not to plant too deep, and pressing the soil round the neck of the plants. In dry weather attend to watering, but in winter they should be kept rather dry. As spring comes on let the soil be stirred, and a good top-dressing will assist the bloom, as well as invigorate the plants. When the bloom begins to show, provide some slender sticks or twigs, fix one to each plant, and tie them up loosely with twine. As the flowers begin to expand, if it be intended to have perfect blooms, examine the pod, and should

any be discovered opening more on one side than the other, with a penknife slit the closed divisions equally, but not so far as to let the petals fall out of place, and then tie round the lower portion of the pod with twine or fine matting; this will prevent bursting, and preserve the flower uniform in shape. A thin covering of muslin stretched over the bed in the blooming season will be found to prolong the flowering, as well as to preserve the colours clear and distinct. Pinks are easily forced, and are then a very acceptable addition to our early spring flowers, and this may be done with very little trouble. So soon as it is possible to get good pipings from forced plants, strike them in sand under a hand-glass, in a gentle heat, and when rooted proceed to "harden off" gradually, after which put them out in the bed, where they will make nice plants ready for potting by the month of October; after this they should be kept in a cold frame. Among the kinds well adapted for forcing are the Pheasant's Eye, white, with a dark eye; Moss Red, a later variety; and the Paddington Pink, still later. During forcing they should be placed close to the glass, in a house or pit where the temperature is kept about fifty degrees, and they require a full exposure to the sun. Under this management they will bloom in February, and amply recompense the small care which they have required, no flowers repaying better the trouble bestowed upon them.

A FEW SHOWY HARDY ANNUALS.

BY MR. GEORGE THOMPSON, BLYTH.

HAVING had frequent applications from amateurs and lady gardeners requesting the names of a few of the best annuals, I shall be glad if you will favour me by the insertion of a few descriptive remarks on the same, which no doubt will be useful to others who take in your valuable work. As to the choice of annuals, a great deal depends on the position they are intended to occupy; but for small gardens, the sorts should be such as are neat in appearance, dwarf in habit, distinct in colours, and free flowering. The following are a few of this character.

Asters (China and German): some sorts, such as *nanus*, are remarkably fine flowers, and of such dwarf habit, that I have grown them not more than three inches high; small patches along the edge of a border, where each patch is a different colour, are very pretty. *Bartonia aurea*, a Californian annual, with golden yellow flowers, produced in abundance, growing one foot high. *Cacalia coccinea*, an old plant, but not frequently seen in gardens, has very pretty flowers, of a fine scarlet colour; its dwarf habit, not exceeding nine inches in height, makes it a desirable addition to small gardens. *Campanula speculum*, generally known as Venus's Looking-glass, is a very attractive plant, bearing a profusion of its pretty purple and pink blossoms for a length of time, and growing about one foot high.

Clarkia pulchella and *C. pulchella alba* are well-known annuals, of bright pink and white colours, both very desirable, and no garden should be without them. *C. elegans* is a taller species, of more robust growth, but neither so pretty as the above, nor so elegant as its name would imply. *Clintonia pulchella*, a very diminutive and very beautiful thing, suitable for small beds, as it seldom exceeds three inches in height. The flowers are purple, with yellow and white centres. It is best raised in pots, and afterwards removed to the open border. *Collinsia bicolor* and *C. grandiflora*, flowers blue, pink, and white, well worthy of their very general cultivation. *Delphinium ajacis plena*, the dwarf Rocket Larkspurs, are admirable in well-contrasted patches. *Erysimum Peroffskianum*, from Higher India, introduced by a Russian botanist (whose strangely sounding name it bears), is a very showy annual, the flowers being brilliant orange, in spikes; this is a good thing for making bouquets. *Gilia tricolor*, a dwarf and very neat plant, seldom exceeding nine inches in height; the flowers vary in tints, some being white, others pink; it is a profuse bloomer. *Iberis umbellata*, Candytuft, so well known as scarcely to need description. The purple and white varieties make beautiful edgings to flower beds. *Leptosiphon densiflorus* is another annual, which is very pretty; its lilac-coloured flowers, borne in abundance, render it well worth growing. Its habit is dwarf and neat. *Lupinus nanus*: of all the tribe of Lupines this is the dwarfest kind and most free flowering. A small bed of it is a splendid sight, being a mass of pretty blue and white flowers. *L. luteus*, the yellow species, looks well in the middle of a bed of the former kind. *Nemophila insignis* and *N. maculata* are two of the best of this genus; the former clear blue, and the latter white, with a purple blot in each petal. A few plants soon cover a small-sized bed, and bear a succession of their sweet blossoms. I must not omit that universal favourite, Mignonette, *Reseda odorata*, from my list, though description is needless. *Schizanthus humilis* and *S. pinnatus* are decidedly as handsome and singularly delicate Californian annuals as any we have. Their pretty pink, white, and yellow blossoms, of curious form, excite the notice of every one. They do best when raised in pots, and afterwards turned out. *Viscaria oculata* is a plant with pretty blossoms, though it does not often flower well, and the habit is somewhat naked. *Scabiosa nana* is a neat hardy annual, with flowers of diverse crimson and purple colours, a great favourite of the bees; a patch is worth growing. Poppies, of the fringed and striped sorts, both single and double, *Papaver caryophylloides* and *P. rhæas*, every one should sow in their garden, however small, for, although their bloom does not last long, they are as showy as any hardy annual I know of. When annuals are sown, I advocate a practice which is not generally adhered to, that is, to write labels for each, comprising the scientific and English names, which may be referred to at any time, instead of the untidy practice we often meet with, of sticking the seed-paper in a split stick, inside the bed or patch where the annuals are sown.

ON STOVE AND GREENHOUSE PASSIFLORAS.

BY X. Y. Z.

SEEING an inquiry in your last from one of your correspondents, requesting information on this head, I am happy in giving him a list which I have made of all the species, both stove and greenhouse, which have come under my notice during visits made by me lately to several establishments of excellence in this country. To those who have convenience for growing a number of tender climbers, few plants are so easily managed or are more beautiful than the various kinds of Passiflora; some, in addition to splendid flowers and exquisite fragrance, bear a profusion of very pleasant eatable fruit; others, although destitute of the two last qualifications, are yet so highly ornamental, that they can scarcely be cultivated to too great an extent. Of those which bear edible fruit in addition to their other attractions, the following have been "made a note of."

P. alata: an old species, introduced from the West Indies in 1772, which will grow, flower, and fruit abundantly in almost any situation, either in some waste corner of the stove, or even under the floor. *Buonapartea*: this kind is much less known than it deserves to be. The flowers are deep red, with a purple and white crown, and fine fragrance. It does not thrive well unless the roots come in contact with bottom-heat, and have plenty of room to spread; it then flowers freely, and bears large, orange, pear-shaped fruit, full of watery pulp, of a pleasant flavour. *Coccinea*: this handsome scarlet flowering species was introduced from Guiana in 1820. The fruit is about the size of a small apple, and contains a very sweet pulp. *Edulis* is too well known to need much description; it is nearly hardy enough to endure the greenhouse, but will not ripen its fruit in any situation except the stove. The fruit is purple, acid, with a rather peculiar flavour, and is stated to make a most delicious preserve. *Incarnata*: a greenhouse plant, which has been introduced since 1629, but is far from being common in collections. It very commonly dies down to the roots in autumn, and regerminates again in spring; it has therefore been considered an herbaceous plant. The flowers are pink, and very fragrant. The fruit usually grows to about the size and the colour of an orange. *Laurifolia*: a native of the West Indies and South America, whence it was introduced in 1690. The flowers emit a pleasant fragrance, and the fruit is yellow, rather larger than a hen's egg, and contains an eatable pulp. *Maliformis*: although introduced in 1731, it is fully equal to many fine ones of a much later introduction. The flowers are large and dull red, with blue rays, and very sweet scented. The fruit is yellow, and about the size of a large apple. *Phænicea*: a species introduced in 1831; the flowers are dull crimson, and the fruit about the size of a hen's egg. *Quadrangularis*, to do well, should always be planted where it bottom-heat. Cut in well every autumn, after it has done

flowering, renew the soil, either wholly or in part, every spring, just before it starts to grow, and when in flower give a great supply of water. *Serratistipula*: a native of Mexico. The flowers are not very showy, but the fruit is very sweet and palatable. *Tiliaefolia*: a native of Peru, and introduced in 1823. It has beautiful red flowers, and the fruit is very handsome, and the flavour pleasant. The above are natives of the tropics, except *Incarinata*; they consequently require the stove, and thrive best in a strong moist heat, with a good supply of water when growing. They are all of strong habit, and should be planted in a good rich loam with one-fourth rotten dung. Excepting *Edulis*, none of the above species will set their fruit freely, unless the stigma be fertilized by the pollen of others; for this purpose no kinds are so well adapted as *Edulis* and *Cerulea*. Those Passifloras which are alone ornamental, and on that account deserve extensive cultivation, are the following:—*Alata-cerulea*: a hybrid, which grows very freely in a cool part of the stove or a warm greenhouse. The flowers are rose colour and white, the crown blue and white. *Cerulea* and its varieties are all nearly hardy, and grow freely in light soil, trained against a wall in the open air. *Cerulea-racemosa* is another valuable hybrid, raised betwixt the two species whose name it bears. The flowers are purple, and produced in great abundance in a cool greenhouse. *Kermesina*: this brilliant species is a free flowerer, of very slender growth, and makes a fine appearance in the stove. *Loudonii* has much the habit of the last, but the leaves are larger, and are not coloured with purple beneath; it also requires a warm stove and a very moist temperature. *Fragrans* is a fine species, a native of the West Indies and South America. The flowers are purple; the plant requires the cool stove. *Mooreana* is a native of Buenos Ayres, and was introduced in 1837. The flowers are very fragrant, nearly the colour of *Cerulea*; this plant is almost hardy. *Picturata*: a native of the Brazils, bearing rose-coloured flowers, and purple and white rays; it requires the heat of the stove. *Racemosa*: flowers scarlet, exceedingly handsome; a native of Brazil, requiring the heat of the stove. *Sanguinea*: hybrid, with fine large deep scarlet flowers, very handsome; requires the heat of the stove.

The Passiflora requires a soil rendered light by the addition of heath-mould. Never sift the soil for any of them, but roughly break it, and always give a *good drainage*. All the species strike readily from cuttings planted in sand, and placed in a brisk heat.

WHAT IS A FLORIST'S FLOWER?

BY AN OLD FLORIST.

THE great difference between wild flowers and cultivated ones consists in the latter being so much changed, or as we term it “improved,” by culture as to be greatly altered in appearance from their original

representative; but, let me observe, all plants are not thus capable of being so altered, though generally every individual of the same species varies slightly in some respects from its brethren. Among trees, for instance, some have an erect manner of growth, while others, of precisely the same kind, will assume a drooping habit; and among herbaceous plants the colours of the flowers will often materially differ, and some even show a disposition to become double. The more variable a plant is in a state of nature, the more readily will it become changed by the different modes of cultivation practised on it, though many plants scarcely differ under any circumstances; and, as a general rule, fewer annuals become changed than perennials, and fewer ligneous plants than herbaceous. The early floriculturists considered changed herbaceous plants only as florists' flowers; but florists of the present day admit not only suffruticose plants, as *Pelargoniums* and some *Calceolarias*, but also shrubs, as *Roses* and *Camellias*. Flowers, to constitute florists' flowers, must become subservient to certain laws, the chief of which is form. The outline of every florists' flower should be circular, or as nearly so as possible, as may be readily perceived by drawing the outline of the most esteemed *Tulips*, *Carnations*, *Pansies*, etc. A change of the form of the flower, however, is not generally the first departure from nature in a plant, but is rather the result of culture or accident; a departure from the usual colour of the flower, or normal habit of the plant, is, however, by no means unusual; and the former constitutes, in conjunction with form, the chief merits of florists' flowers. Let us examine, for example, the flower of the wild *Carnation*. In a state of nature, we shall commonly find it varying from flesh colour, rarely white, to dark crimson, and the outline, instead of being circular, angular; but, by cultivation, the flower becomes much increased in size; the stamens are metamorphosed into petals, rendering it what is called double; by which means, and by the enlargement of the original or guard petals, the angles are filled up, and the outline rendered circular; the ground-colour also changes to pure white, striped with crimson, scarlet, pink, or purple, in which case it is called a *Carnation*; or with a white or yellow ground, dotted and edged with red, purple, or scarlet, it is termed a *Picotée*. The flower, however, is not the only part that undergoes a change, the whole plant has also departed from the original type; it has become much more vigorous, with leaves broader and blunter than in the species. The great distinction, however, between native species and accidental varieties is the incapability of the latter of perpetuating themselves; for, should they produce seed, the greater portion of the plants raised therefrom will be in a transition stage to the original stock. The true way therefore to increase or perpetuate varieties is only to raise seedlings from the most decidedly marked variations, and to remove them from the immediate neighbourhood of the original species, to which they always have a tendency, more or less, to retreat. The *Carnation* is a familiar example of this, for the pure white ground-colour of many varieties gradually becomes flushed with pink, and

ultimately changes to dark crimson, which, in most cases, defies all the art of the florist to change again to white.

Vegetable physiologists are undecided as to the causes of these variations, but the most generally received opinion among florists is that, in the case of the Carnation, the running back to the original colour of the species is occasioned by the application of too powerful stimulants in the cultivation. The changes and varieties in the colours of flowers are innumerable, and constitute, as we have before said, the great attraction of florists' flowers. No cause is assigned, but there appear to exist certain fixed laws by which colour is affected; as the Carnation, which in its pristine state is crimson, becomes, by cultivation, white, slate coloured, and dull yellow, but never blue, and seldom bright yellow; and the Dahlia includes varieties of almost every shade of colour, except blue. Besides changes in form and colour, florists' flowers undergo transmutations of various organs; for instance, in order to render Carnations and Pinks double a multiplication of petals takes place, and the stamens are expanded and become petaloid; the Rose is rendered double by a multiplication of petals; and the Anemone by a regular series of transformations of all the organs, from the sepals to the pistillum.

Many florists' flowers have been very much improved by cross-impregnation, of late years, not only between varieties of the same species, but also between two distinct kinds. Had not the wild Violet been crossed with *V. altaica* and others, our gardens would never have been decorated with large round Pansies of every imaginable hue and combination of colours. Cross-impregnation, in addition to altering the properties of the flower, occasions a considerable change in the habits of plants; thus the large fine flowers that are produced on tall diffusive-growing plants may, by careful hybridization, be produced on dwarf thick-set plants; and bright-coloured flowers, without a dark spot to relieve them, may have the spot given them by carefully crossing them with some allied spotted kinds. Now that the theory of hybridization is so well understood, a vast untrodden plain lies open to the florist, which, in the course of a few years, will doubtless be productive of many unexpected novelties; new races will be springing up every day, and the already numerous varieties of plants increased tenfold. As proof of this, we have only to look at the numbers of new Roses and Calceolarias that are brought into notice every season. A few years back we could scarcely have credited the changes which have been effected, and reviewing the past we are led to look forward to a wondrous future of florists' flowers.

ON THE TREATMENT OF NEW HOLLAND PLANTS.

BY W. T—N, ESQ., EPSOM.

I HAVE taken great interest in this singular tribe of plants, and have had a large house put up for their especial use, in which *Banksias*, *Dryandras*, etc., are now well established. The best plan for growing

the former species well is to make a mixture of one-third peat, one-third loam, and one-third sand. The pots should be well drained in the following manner: place a piece of potsherd about half-way over the hole at the bottom of the pot, then lay another piece against it so as to leave a hollow space; place some smaller pieces round them, and others, broken very small, on the top of these. All plants belonging to the Proteaceæ should be drained in the same manner, for the roots are very fond of running amongst the broken potsherds, and there is not so much danger of their being over-watered. Care must be taken not to let them flag for want of water, as they seldom recover if allowed to get very dry; they should also be placed in an airy part of the greenhouse when in-doors, nothing being more beneficial to them than a free circulation of air. Cuttings are generally supposed to be difficult to root, but they will root readily if properly managed. Let them be well ripened before they are taken off; then cut them at a joint, and plant them in pots of sand, without shortening any of the leaves, except on the part that is planted in the sand, where they should be taken off, quite close; the less depth they are planted in the pots the better, if they only stand firm when the sand is well closed round them. Then place them under hand-glasses in the propagating-house, but do not plunge them in heat. The glasses must be frequently taken off, to admit air and to dry them, or they are apt to damp off. When they are rooted, the sooner they are potted off in little pots the better, as the sand is liable to canker their roots if left too long in it. When potted off, they should be placed in a close frame, but not on heat, as a bottom-heat will destroy their roots; and they must be hardened to the air by degrees. Plants raised in this way have better roots, grow faster, and flower sooner, than plants raised from seeds. In raising them from seeds, they should be sown in the same kind of soil as the plants are grown in, and placed in the greenhouse; or if it is in summer, they will come up earlier if placed out in the open air. They will soon make their appearance, and they should be potted off in small pots, for if left in the seed-pots too long they are apt to die, and are more difficult to move with safety.

Dryandra is a beautiful genus belonging to the Proteaceæ, and is nearly related to *Banksia*. The species thrives best in an equal mixture of light turfy loam, peat, and sand; the more sandy the soil is the better they will thrive. The pots must be well drained with potsherds, which should be broken very small, as the roots are fond of running amongst them. Ripened cuttings, taken off at a joint, and planted in pots of sand, without shortening any of the leaves, will root freely if placed under hand-glasses, but not plunged. As soon as rooted they should be potted off, as the sand will injure their roots if they remain too long in it; then they should be placed in a close frame till they have taken fresh root, and must be hardened to the air by degrees. August and September is the best time for potting the cuttings; they will then be rooted by spring, or many of

them. The genus *Aulax* thrives best in a very sandy loam, with a great many potsherds, broken small, at the bottom of the pot, to let the water drain off freely, as they frequently get too much water, which soddens the mould, and stagnates their growth. Ripened cuttings, taken off at a joint, and planted in a pot of sand, will strike root if placed under a hand-glass, in the propagating-house, and the glass be occasionally left off, an hour or two at a time, to give them air, and keep them from damping, which should be done in a morning, before the sun has much power, or it will make them flag and injure them. Plants are readily raised from seeds, which should be sown in a mixture of two-thirds loam and one-third sand. As soon as they come up, they should be planted off in small pots, in the same kind of soil, as they are very apt to die if left too long in the seed-pot.

ON THE VALUE OF LIQUID MANURE.

BY F. GARDENER.

NOTWITHSTANDING the repeated recommendations of practical men in favour of liquid manure, but little attention is paid to the subject. If it be of the vast importance which it is said to be, why is it so little used? Why does not every garden contain its tank, in connection with the manure heap? To make such an arrangement, to provide a receptacle to retain the juices of the decaying weeds in the rubbish heap, can neither be difficult nor expensive; and if it be practicable and easy of accomplishment to provide for the latter, the same arrangement would be suitable for the manure heap. A common tub or cask of any kind will answer the purpose, and if it is leaky of itself, it may be rendered water-tight by puddling round the outside. It is supposed, of course, to be placed with its upper end level with the ground, or as much under the surface as will ensure drainage running into it. I have applied it in various ways, and in every instance with results which have proved its value. On my flower beds I have used it freely during winter, and especially in frosty weather, when snow was on the ground. I have several tanks, but they are all connected with each other. In one of these I have fixed a large wooden pump, through which the liquid is drawn and carried to the flower beds and borders, as time permits.

ON THE PROPAGATION OF PLANTS BY CUTTINGS AND LAYERS.

BY A PRACTICAL MAN.

IN regard to propagating by cuttings, fine white sand is generally used, into which the cutting is inserted; below which, after the pot is sufficiently drained, that sort of soil is placed in which the genus

is found to thrive. There are few plants that are capable of reproduction by this means that will root freely in sand, and many of the freely growing sorts will strike in the compost best adapted for the genus. The shallower that all cuttings are put in the pots, the sooner and better they will root. The sand must never be allowed to become too dry, for in such a case much injury might be done before the cultivator would observe it. Neither ought they be kept too moist, for fear of damp, which should be guarded against by frequent observation, and by once or twice a day wiping the glasses with which they are covered. The sooner that cuttings are potted off, after they are rooted, the better; and if carefully shaded, and not put into too large pots, the better they will thrive. The sand should be completely removed from the roots of the cuttings previously to potting off, for it is very injurious to most plants, particularly those that are of delicate growth. This circumstance does not appear to be generally known, at least if it be, it is not always acted upon, and to this may be attributed many of the failures which usually attend the potting off of cuttings.

Plants originated from cuttings taken from plants in a flowering state have an advantage over seedling plants, as they come into bloom much sooner, and often while quite small; thus Geraniums, and many other plants, propagated from the terminal shoots that would produce flowers, are found to root and come into bloom when only a few inches high, and often in pots of not more than three inches diameter. Seedling plants, although they in general grow much more luxuriantly, seldom produce their flowers till they have attained nearly their full size. Plants originated by laying also bloom soon, but can seldom be trained, excepting in the case of creeping or climbing plants, to anything like a handsome head. But laying is the only means by which some plants can be propagated with facility, and hence it becomes necessary.

HINTS ON NEGLECTED PLANTS.

BY F. B. W.

THERE are not a few plants of which the capabilities have scarcely been sufficiently tested, and which are, I am persuaded, more deserving of a greater share of notice than they have hitherto received. Concerning these I shall occasionally forward a paper for insertion in your widely circulated *Cabinet*, hoping by that means to draw attention to them, and to induce an extended trial of their merits. Of such is the *Myosotis azorica*, a plant useful in the greenhouse, as well as for bedding purposes or window decoration; a good-sized specimen in full flower looks very attractive, the blossoms being numerous, of a rich purple colour, and its management is such as to demand but little trouble, though it cannot often be grown to a size which will develop its beauties in one season. It is best raised from

seeds, which will require the usual management of greenhouse seeds. When the young plants have gained strength, they should be potted off in medium-sized pots, and as soon as filled with roots, shifted to a few sizes larger; as autumn approaches they will require to be placed near the glass, in which position they may remain until spring. Two or three plants in one pot make nice bushes. When growth has fairly begun in the ensuing spring, repot them in large pots, say twelve inch, and find a rather warm situation for them in the greenhouse, where they will make rapid progress, during which it is best to train them to neat stakes. By midsummer they will have attained a height of about eighteen inches, making compact bushes, and in July will be loaded with their lovely blooms, resembling the delicate Forget-me-not of our ditches, but of richer colour and superior size. When in bloom it may be removed, if desired, to the window of a drawing or sitting room, and prove that *Myosotis azorica* is a plant not so generally cultivated as it deserves to be. The best compost, and one in which it will be found to delight, is a mixture of peat, loam, and white sand; and a very fibrous peat is to be preferred in the above compost, when it can be had. After the bloom is past, the specimen may be either cut back, for another year, or what is better, thrown away to make room for fresh plants, a succession of which should be kept up.

Another plant that ought to be cultivated in every flower garden, which is a great favourite of mine, and useful for winter decoration, is the Helleborus, or Christmas Rose. If the weather be mild we have them in flower as early as November, and continue till spring; they do well in pots, and if divided by the roots in April they will flower well the following winter. In summer the pots should be placed in a bed of ashes, in a situation screened from the too powerful solar rays; if removed to the greenhouse as winter approaches, they will come in flower early, and at a time when their pleasing blossoms are extremely acceptable.

REMARKS ON THE RED SPIDER, OR PLANT MITE.

BY S. W. J.

NEARLY all kinds of plants are at one time or other infested with some species of mite. The *Acarus telarius*, however, is our greatest pest; for although it is well known its ravages could be prevented by humidity, yet there are seasons when much humidity cannot be allowed. These little creatures multiply at all seasons of the year, and their fecundity is prodigious. The females lay their eggs generally at the back of the leaves, because there they are sheltered from intense light; the eggs are very minute, and not collected in masses, but scattered thickly all over the leaves, as may be seen with a microscope. In a short time after deposition they are hatched, and the young begin to move about upon the leaves. As they advance in growth they become more and more red; when arrived at their full size they are dark

brown, and slightly hairy. From the time they issue from the egg until they are fully grown, they cast their skins several times, becoming each time something darker in their colour. They construct for themselves close silken webs, by which they travel from one leaf to another, and these webs are made thick at the back of the leaves, to shelter the young from the effects of moisture, which would soon prove fatal to them.

A moist atmosphere and free growth of the plants are certain preventives to the increase of this insect, but it becomes necessary to use other means sometimes. The grand antidote is sulphur, which destroys mildew, and effectually rids the plants of the red spider.

The method which is most successful in the application of this substance is as follows, and may be depended upon to destroy every insect if properly applied, and persevered in. I have myself never known it fail. Take half a pound of flowers of sulphur, put it into a watering-pot, and add as much water as will make it into a paste, afterwards add more, until sufficiently thin; pour it into a garden engine, or other vessel capable of holding four or five gallons, then add as much water as will make it into four gallons. Water the infested plants with this overhead, either with a syringe, garden engine, or watering-pot, and repeat the application until every insect disappears.

NOTES ON NEW AND SELECT PLANTS.

167. *ARGYREIA HIRSUTA*. Nat. Ord. *Convolvulaceæ*.—A very handsome Bindweed, introduced to Kew from the Paris garden, in 1850; a native of India or China. The plant is of large growth, and has flowered freely trained along the rafters of a stove. The blossoms resemble those of a large *Ipomœa*, and are of a bright lilac colour, four inches and a half across the mouth. The stems are downy, the leaves large and bright green, and habit free. (*Bot. Mag.*, 4940.)

168. *LYSIMACHIA NUTANS*. Nat. Ord. *Primulaceæ*.—From the Cape district, flowering in July in the open air; but the plant requires protection to the roots in winter. The flowers are borne in a spike, and are deep purple-crimson. (*Bot. Mag.*, 4941.)

169. *COCONOPSIS ROTUNDIFOLIA*. Nat. Ord. *Campanulaceæ*.—A rambling plant of no great beauty, bearing green campanulate flowers, lately introduced to Kew, through seeds sent by Dr. Royle from Himalaya. (*Bot. Mag.*, 4942.)

170. *OROBUS FISCHERI*. Nat. Ord. *Leguminosæ*.—A rather pretty species of Vetch, which, although not new, is rather scarce. It was originally sent to England by Dr. Fischer, of St. Petersburg, but is supposed to be a native of Italy or Algeria. It is an erect-growing plant, with very narrow leaves and pretty purple-crimson flowers, perfectly hardy, and free blooming. (*Bot. Mag.*, 4943.)

171. *DENDROBIUM FALCONERI*. Nat. Ord. *Orchideæ*.—This is a

very distinct and splendid new member of the genus, from the mountains of Bootan, where it is stated to grow at an elevation of 4000 feet. A plant in the possession of George Reid, Esq., of Burnham, Somerset, threw out a spike the present year nearly four feet in length, carrying upwards of sixty lovely blossoms; the petals are white, tipped with a broad patch of deep purple, spreading horizontally; sepals pale rose, tipped with dark purple, and the limb yellow, having a broad purple central spot and extremity; diameter of the flowers about four inches. The leaves are few and small. This species will prove a great acquisition to lovers of Orchids. (*Bot. Mag.* 4944.)

172. *MUCUNA PRURITA*. Nat. Ord. *Leguminosæ*.—A singular-looking climber, which flowered in the Palm-house at Kew during the past summer. The flowers are about two inches long, dull purplish black, borne in large bunches, which at a distance appear like bunches of grapes. It is a native of the East Indies, and very abundant in the neighbourhood of Madras. Seeds were brought from India by Dr. J. D. Hooker. (*Bot. Mag.*, 4945.)

173. *IONICERA BROWNI*. Nat. Ord. *Caprifoliaceæ*.—From the Columbia and vicinity of Fort Vancouver, where it was discovered by the lamented Douglas. The flowers are orange-red, and with the clear yellow stamens and throat make a desirable appearance; they are, however, scentless. The leaves are broad and yellow-green. (*Flor. des Serres*, 1133.)

174. *L. SPLENDIDA*. Nat. Ord. *Caprifoliaceæ*.—This pretty species of Honeysuckle inhabits the Sierra Nevada, in Spain, and is remarkable for the pale leaden colour of its stalks and foliage. The flowers are pale yellow and buff. (*Flor. des Serres*, 1130.)

175. *ROSE AUGUSTE OGER* (*Tea*).—A handsome variety, raised by M. Oger at Caen, in Normandy. The flower is of good size and form, of delicate blush, and is said to be extremely fragrant. (*Flor. des Serres*, 1131.)

176. *R. A FLEURS VERTES* (*Bengal*).—Morphology is curiously illustrated by this Rose, whose green flowers exhibit petals transformed to leaves, the corolla being totally altered in its nature. It is more a botanical curiosity than anything else. (*Flor. des Serres*, 1136.)

177. *JACQUEMONTIA CÆLESTIS*. Nat. Ord. *Convolvulaceæ*. The azure-blue flowers of this pretty climber have suggested the specific name. It is a native of the hot regions of South America, and consequently requires stove temperature. (*Flor. des Serres*, 1132.)

178. *HYPERICUM OBLONGIFOLIUM*. Nat. Ord. *Hypericææ*.—Messrs. Veitch have the merit of introducing this plant, through their excellent collector Mr. Thomas Lobb, who found it on open hills at Mofflong, Khasia, India. The flowers are large, and deep orange or reddish yellow colour, borne at the ends of the branches in forked cymes; the sepals are large, roundish ovate, very blunt, and slightly serrate; the leaves are firm, sessile, ovate, and punctured with numerous small transparent dots. (*Journ. Hort. Soc.*)

QUESTIONS, ANSWERS, AND REMARKS.

ARDISIA.—Will you or any of your subscribers favour me by stating what compost is suitable for this tribe, and what is the proper mode of propagating it?—*A Reader.* [These plants are very ornamental for their scarlet fruit; they all grow in loam and peat, and cuttings root freely in sand, in a moist heat, under a hand-glass. They may be also increased by cuttings of the root placed in heat.—*Editor.*]

CRINUMS.—These bulbs are known variously, by some botanists as *Pancratiums*, by others as *Amaryllis*. They should be grown in rich loam mixed with a little peat and sand, and allowed plenty of pot room. I have for two years past had a fine show of them, and, if acceptable, shall be happy to send you a few lines on my treatment.—*P.* [We shall feel obliged.—*Editor.*]

MEDINILLA MAGNIFICA.—Having a fine plant of the *Medinilla magnifica*, I should be glad if some of your readers would give me the method best suited for propagating this magnificent plant, as I fail in striking it.—*H., A Subscriber.*

PASSIFLORAS.—In compliance with the request of your correspondent A. D., in the September number of your widely known *Cabinet*, I would mention a few *Passifloras* that I have grown in my greenhouse for several years, though I am not able to give him a list such as he requires. *Passiflora Loudouii*, flowers a most brilliant crimson; *P. Kermesina*, red; *P. edulis*, the purple fruited, it does not, however, fruit with me, though it flowers tolerably well; *P. cæruleo-racemosa*, the common blue clustered; and *P. incarnata*, flesh coloured, or pink. They are all increased by cuttings of the young shoots planted in sand, and covered with a glass, as also by layers and seed when the latter can be procured. Any moderately rich light soil suits them; and, contrary to the generality of the genus, they all flower well in a low temperature.—*W. C., Canterbury.*

ROOTWORK.—The roots of trees, and especially large roots, including the stool or base of the tree, after the trunk has been cut down to the ground, may be combined together in various ways, useful, ornamental, or curious, in gardening. Two or three stools of large size grouped together on a lawn, with mould and plants placed in their interstices, form a striking contrast to the smoothness and high art displayed on the general surface of the lawn. The plants placed among the roots, whether in pots concealed by mosses, stones, or mould, or planted in soil, should never be of indigenous kinds common in the locality, for these might be mistaken for weeds, but of exotic kinds, such as *Geraniums*, *Petunias*, *Maurandias*, etc., or of British or European Alpines, of small size and neat foliage. The idea to be kept in view is that of creating artificial ornaments without much expense; and therefore the roots must never appear to have been left where they are by carelessness, but placed by design, and with reference to the composition of which they form a part. In many situations, conglomerations of roots as a receptacle for plants are more pleasing than those of stone, because they display less effort, and seem a more natural and easy way of forming a nidus for ornamental plants. Too much effort and expense for attaining any object is never altogether so satisfactory as when the same is obtained with ease and economy. Hence rustic seats in a pleasure ground, and rustic vases, or other vessels for containing plants, are more satisfactory than cast-iron seats or marble vases, unless the latter be connected with some building. Roots may also be combined together so as to form seats, open or covered huts, grotto-like structures, and rustic or grotesque bridges; and one object to which they are particularly suitable is for placing on the margin of pieces of artificial water, along with trees, bushes, or plants. A smooth expanse of water, like a smooth lawn, requires shade and roughness to contrast with it, in order to produce a striking effect; and roots at once supply both roughness and shade. In placing them, a part of the root should always be covered by the water, and another part by the soil; and by planting a young tree or bush adjoining the root, a double contrast is produced between the root, which gives the idea of an aged tree long since felled or dead, and the erect young shoot, which is to become a future tree. The shadow of the group in the water adds to the interest of the scene. A very common error in the use of roots is that

of mixing them with stones in rockwork; this must at all times be shunned.—*D. F., Fareham.*

"**FERNY COMBES.**"—At page 295 I find stated, on the authority of this book, "*Allosorus crispus*, the Parsley Fern, is found only on lofty hills." This is a great mistake; the *Allosorus crispus* grows profusely in the neighbourhood of Keswick, and I believe in that of all the English lakes in Cumberland, in the most opposite situations—in wet ditches, by the roadside, and on old tiled roofs. My attention has been for many years directed to this beautiful Fern, and I have tried to cultivate it, in-doors and out of doors, in various situations, soils, and aspects, without permanent success, and I find the same difficulty has been experienced by many cultivators. I obtained a fine specimen from the Lakes last autumn (1855). I kept it in a pot in a cold frame, in peat and loam, with drainage of potsherds half the depth of the pot. In the summer I sunk the pot in a north border, very moist and shady, where it did better, producing its double foliage, but not very freely; it will now be repotted and returned to the frame: it is looking well. Many of the hardy Ferns require winter protection when removed from their native habitats, though they be ever so cold; witness the beautiful and scarce Fern *Aspidium lonchitis*, from the bleak mountains of Scotland.—*P. E., Durham County.*

HARDY BORDER PLANTS.—There can be no doubt that the mass system of grouping the flower beds, in summer, so full of tender exotics, has lost entirely to cultivation many old and valuable perennial and biennial border flowers. This is to be regretted, for many are extremely handsome. It is problematical whether the rage for new plants does not cause many of us to lose sight of old and tried favourites. The mass system cannot well be dispensed with where brilliant display is aimed at; neither is it desirable to do so. The two are perfectly distinct in character, and should be kept so in planting. Borders should be especially allotted for the growth of biennial and perennial flowers, when, by a proper selection and judicious planting of kinds, it need not be without blossom from the first spring flowers till frost. A few annuals sown amongst them would assist in giving brilliancy. To look effective, in planting, regard should be had as to the height each sort grows to; the tallest being placed farthest from the spectator, gradually diminishing to the tiny plant at the edge. Care should also be taken to distribute the striking and showy colours evenly over the whole space. The following five belong to the same genus as the Carnation, and are all well worth a place in every garden. The three first-named are biennial, flowering only once, after which they die off, and require to be raised from seed each year. The two last, Sweet William and Deptford Pink, are readily increased by division of the roots after flowering, or early in the spring, and by cuttings, and seed likewise. Seeds sown in May or June will get good established plants by winter, and flower finely the following summer. The different species of this family readily impregnate with each other, from which have sprung many interesting hybrids. Ordinary garden soil will grow them; if light and somewhat sandy, so much the better. *Dianthus hispanicus* (Spanish Pink), height one foot, flowers deep red; July and August. *Dianthus pulchellus* (Pretty Pink), height one foot, flowers lilac; June to August. *Dianthus chinensis* (Indian Pink), height one foot, of various coloured flowers, many varieties, single and double. *Dianthus armeria* (Deptford Pink), height one foot, red or white flowers; June and July. *Dianthus barbatus* (Sweet William), height one foot, flowers of various colours; June to August. There is some chance of this fine old favourite ranking ultimately as a florist's flower; it is very susceptible of improvement, and already numbers many beautifully marked and coloured flowers, both of single and double varieties.—*E. S.*

OROBANCHE.—The *Orobanche Hedera* grows abundantly in the neighbourhood of Dublin on Ivy, as the specific name implies. After the stems of the present year's plants decay, in the months of September or October, by searching among the Ivy roots, some will be found swollen, and others with the young buds of Orobanche developed on them. By cutting off the strongest of these roots, between the plant and developed Orobanche buds, and laying bare the roots of Ivy where it is desired to establish the plant, and tongue-grafting the roots of the two Ivy plants together, that on which the buds are and that on which they are to be established, covering all carefully up, the roots of the two plants will unite during the winter, and the Orobanche be developed in due course the

succeeding year. In this way *Orobanches* and *Lathræa squamaria* have been established at Glasnevin. They have not been raised there directly from seed sown, but sufficient proof has been afforded of their growing by that method.—*P., Dublin.*

LIGUSTICUM MEUM.—Some plants are grown in flower gardens on account of their remarkable foliage, and well they deserve a place; some of our native plants might still be added, where there is room to grow them, if not for their flowers, they would give variety and beauty with their leaves, and when brought from mountainous pastures and planted in rich garden soil, their appearance is so changed that those who knew them in the one place will sometimes not know them in the other. The *Ligusticum meum*, or *Meum athamanticum*, might be introduced on account of its setaceous multifid leaflets; the appearance of the plant is greatly altered when brought from upland pastures and introduced to gardens, and its roots are eaten by many as an aromatic and carminative.—*Peter Mackenzie.*

PROPAGATION OF TROPEOLUM TRICOLORUM.—The simplest mode of doing this is to take off the weak laterals that are not likely to flower, when about two inches long; if with a heel so much the better. Any time from February till May fill the pot half full of crocks, then with a mixture of peat and sand till within two inches of the top; fill up with silver sand, and water with a fine rose, to settle it. Then dibble in the cuttings all round, within one inch of the rim, leaving about half an inch of the cutting above the sand. Place the pot on a shelf in the front of the greenhouse; keep the sand constantly moist, taking care that the cuttings are always erect. In the course of two months many of them will throw up shoots from under the sand. The pot should then be removed to a shady situation out of doors. When the stems decay, do not disturb the sand, but water sparingly. In October let them be placed in the greenhouse, when all that have made small tubers will grow. It is from these plants that the best cuttings are obtained in the spring. In the following May turn the whole ball out of the pot, in a warm situation in the open ground. After they have finished growth take them up and sift the ball through a fine sieve, carefully picking out the tubers. They are then treated in all respects as the older tubers, and will make fine flowering plants the following spring. If seeds are used, they should be soaked in water twenty-four hours before sowing, and the outer shell carefully removed; under this treatment they will grow much sooner and with greater certainty. They should remain in the seed-pot until after they have formed a tuber. A small stick can be placed against each plant, to which it will climb, and it serves to indicate the place of the tuber when the stem is dead. Many seeds will remain twelve months before vegetating.

ANEMONE PAVONIA.—This very attractive flower may be planted in patches this month, in a south border, in any light soil. The following are very pretty French varieties. Abide, scarlet-red, yellow centre, stamens black. Achilles, bright carmine, velvety, centre white. Adonis, vermilion-red, centre white. Bajarac, scarlet-red, velvety, centre white. Coronis, fiery carmine, centre white. Damia, violet, centre white. Dedalion, bright vermilion, stamens black. Danüe, carmine-madder. Eolus, carmine, centre white. Fidius, brilliant red, velvety, centre yellow. Plutus, vermilion-red, centre white. The roots should be taken up and dried in the shade, as soon as the leaves die down in May.—*Nemo.*

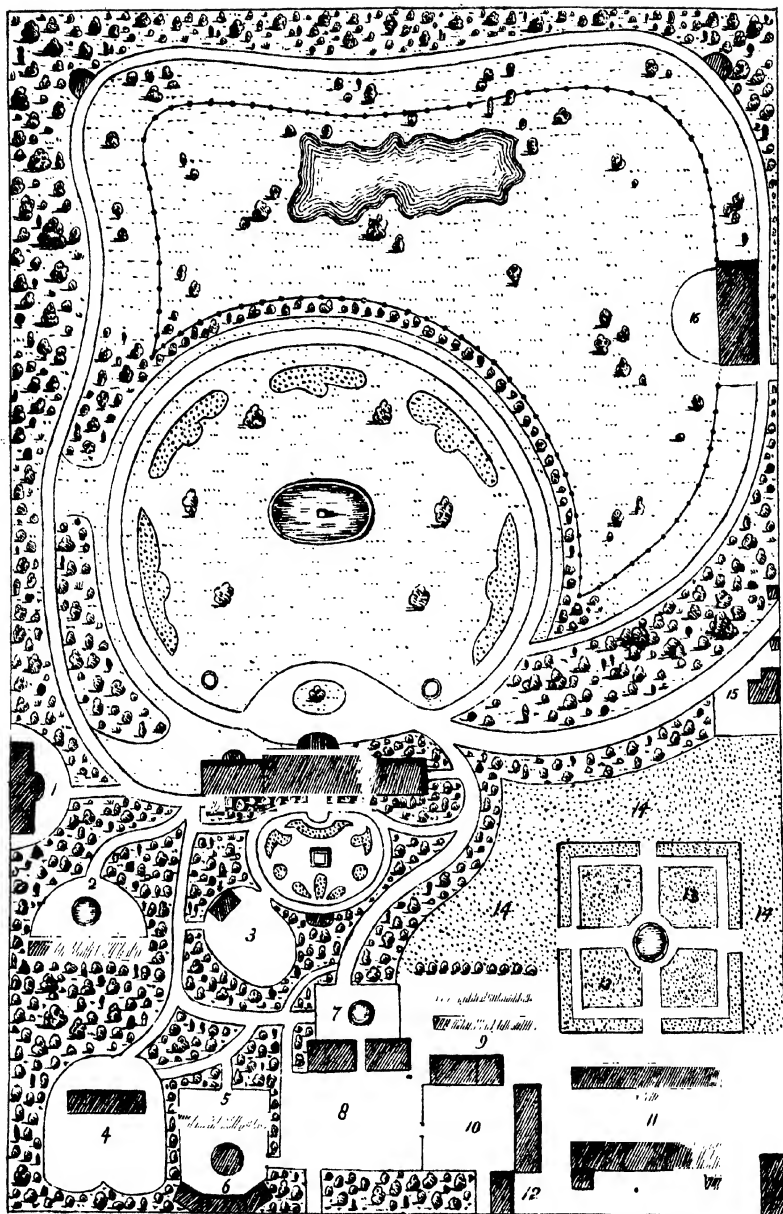
SUMMER STOCKS.—The first sowing may be made any time in March, to suit circumstances; and when they come up, keep a watchful eye that the first sprung seeds do not damp off. This I take to be a particular point in securing the greatest quantity of double flowers. When the least appearance of damp occurs, they should be immediately transplanted; but if not, the sooner this is performed the better. The following plan I have adopted with success:—I fill a frame with soil, and make small holes all over, about two inches in diameter; I fill these with moss, placing the plants in the centre of each. By the time for planting out, it will be matted with roots, and the ball can be removed to where they are intended to flower, without the plants receiving the least check. This mode is preferable to using small pots, because the roots generally make to the sides of the pots, and when turned out, are more or less injured; besides, it is of some advantage to be able to dispense with pots. No plant is more susceptible of a check in any way than the Stock; and I think it has less chance of receiving it when moss is used than if potted, for there is not the risk of its getting pot-bound, or the roots being injured in turning out. If they are to be well grown, they must receive no

check from the time of sowing, until they are placed where they are to flower; and, as before mentioned, particular care should be taken in securing those plants that come up first, for I have proved that they produce the greatest quantity of double flowers. The soil for them should be of medium texture, neither too light nor very heavy, and should be well enriched with dung; in fact, they will bear almost any quantity of rotten hotbed manure. Ten-weeks Stocks sown after the 1st of May never grow and flower fine; they are always stunted.—*G. J.*

THE MYRTLE.—The ancients made great use of this plant in medicine, and they formed a kind of wine from the berries, as well as an oil, which they extracted from the ripe fruit of the Myrtle. The Romans flavoured their wine with the berries, as well as many of their dishes in cookery, before the use of pepper was known to them, and even then it was in high estimation for making sauce to the wild boar. The Italian ladies still consider the tree of Venus to be favourable to beauty, and drop into their bath a water distilled from the leaves, whose fragrance they prefer to the most costly essence of the Eastern nations. The Myrtle is said to have been introduced into England from Spain by Sir Walter Raleigh and Sir Francis Carew, in 1585, when they resided in Spain and discovered the preparations making for the Spanish Armada. Miller tells us, in the first edition of his Dictionary, printed in 1724, that “at Sir Nicholas Carew’s, at Beddington, in Surrey, is a Myrtle of the Spanish broad-leaved kind, which is above eighteen feet high, and spreads above forty-five feet.” If this were the original tree, it would then be one hundred and fifty-six years old, and most probably perished with the original orange-trees that were killed by the severe winter of 1739-40.

THE PÆONY.—For the information of persons beginning to form a small collection, I beg to notice a few sorts well worth growing. *Barterii*, single, glossy, crimson, beautiful bright yellow centre, and finely cupped. *Foliosa*, light crimson, fine foliage, very fine. *Lobata*, neatly shaped, pink, single. *Officinalis carnescens*, splendid crimson, rich centre, single, very fine. *Pallida*, elegant shape, deep and broad flower, of a very delicately shaded pink colour; quite a gem, and should be in every garden. *Officinalis albicans*, after the same style as the preceding, “alike, but different,” not quite so large a flower. *Albiflora chinensis*, is perhaps one of the very best yet in general culture; its fine foliage, neat habit, and pure white flowers render it an object of universal admiration to all who have seen it; the latter measuring from seven to eight inches in diameter. *Humei*, fragrant, and *odoratissima* are finely shaped, the two latter finely scented, and the three are indispensable to collections, if only of moderate pretensions. The colour is variously shaded, rosy, and lilac. *Potsii* and *Rhevesii* are well worth growing; the flowers of the former are neat, and of a pretty light pinkish colour; the latter is of a rich crimson.—*W. B. T.*

CULTIVATION OF MESEMBRYANTHEMUMS.—In the spring of 1854, I planted out as many plants as filled three lights, putting nine or ten under each light, of different sorts, such as *inclaudens*, *aurantium*, *perfoliatum*, *deltoides*, *barbatum*, and other species of different habits; the strong-growing kinds were put towards the back, and the dwarf ones in the front. They soon grew very vigorously, and flowered exceedingly well, having a very different appearance from that they exhibit when confined to small pots; many of them continued in blossom all winter, and until the spring, when I gave them a good thinning, for they were spreading over each other, and mixing together. At that time I planted the remainder of the pit, which is forty feet long and four feet wide in the clear; I also covered the surface with stones of different sorts, which were laid irregularly so as to resemble rockwork; the stones had the effect of keeping the branches from the soil, which might otherwise decay them. In winter the whole must be covered with lights, and occasionally with mats, as pits in front of houses usually are, but these are not necessary in summer, as the plants must be fully exposed to the free air, the same as hardy greenhouse plants, and require little more than thinning and plenty of water. Pits in front of stoves must be preferred, as the warmth from the front wall in winter will repel damps, and with a little covering above the glass, will sufficiently keep out the severest frost. I was induced to attempt the above mode from observing that Ice-plants grow to perfection on small hillocks of rich mould, supported by stones put together in imitation of rockwork, two or three feet high, with a base of about four feet diameter; these banks look well when the plants cover them entirely. I have cultivated Ice-plants in this manner with success, every year since I have been here.—*K. Hull.*





CORREAS.

The Floricultural Cabinet.

DECEMBER, 1856.

ILLUSTRATIONS.

HYBRID CORRÆAS.

THERE are few plants which can surpass *Corræas* as attractive winter-blooming inhabitants of the greenhouse, whether we take into account the amazing profusion of flowers they produce, or the extension of their blooming season throughout the dreariest months of the year. Their management is easy, merely requiring the protection afforded by a cool airy greenhouse, to be potted in a mixture of heath-mould and light sandy loam; the pots must be supplied with plenty of drainage, and care taken that but a moderate supply of water is afforded them in winter. The genus is exclusively Australian. All strike freely, except perhaps *Corræa speciosa*. Cuttings should be taken off the ripened wood, in autumn, struck in silver sand, and allowed to stand till spring in a cool pit, where they should be placed upon a gentle bottom heat; they will soon strike root and may be potted off into small pots, and hardened off to stand in the greenhouse. As they grow rather slowly, grafting and inarching are sometimes resorted to, and with advantage; for this purpose *C. alba* makes a good stock—the proper time for the operation being when the plants show signs of growth, in spring.

The subjects of the present month's plate are hybrid varieties, raised by Mr Gaines, a gentleman who has devoted considerable attention to the multiplication and improvement of hybrid varieties of this attractive genus. No. 1, *Rosea alba*; No. 2, *Viridiflora alba*; No. 3, *Brilliant*. All are well deserving a place in the greenhouse, especially the latter, which is one of the finest *Corræas* at present in cultivation.

LISIANTHUS RUSSELLIANUS.

BY R. T. W. T.

THIS very fine plant, introduced from Texas several years since, is still uncultivable to many gardeners, as inquiries received from time to time show, yet as we occasionally see some finely grown and bloomed

and on the top place a layer of sand half an inch deep, then damp it; sow the seed rather thinly, sprinkling a little dry sand on the top, and cover with a piece of flat glass. Place the pot in a heat of 70° , or thereabouts, with a pan under it for future supply of water, as this ought never to be applied to the seedlings over the top, and the pan must not be allowed to become dry at any time. In about three weeks the young plants will make their appearance, and in the course of another period of like extent let them be potted off singly in sixties, in the above compost, and with plenty of drainage to carry off the water freely. Set them again in a warm frame, and after this let them be liberally watered over head, and if kept in a good growing heat, they will be nice little bushy plants by the autumn. Top them at every joint, and in September shift them into large sixties, to keep the roots in an intermediate state during winter; after this all top watering must be withheld, and that necessary element applied by a pan under the pots, as before directed; for, as winter approaches, not a drop of water should be allowed to fall on the plants. I have even kept the plants well in a warm greenhouse, although the best place for them at this time is a dung-pit, heated to 50° ; air should be admitted front and back, to prevent the settlement of damp. Water them only sufficiently to keep them from flagging; if dry weather, once a fortnight, but if damp, once a month will be sufficient. Increase the heat to 70° or 75° towards the end of February, and when they begin to make fresh growth, shift them into pots of as large a size as is convenient, for on this depends the fineness of the specimen. As the spring advances it is almost impossible to afford them too much heat and moisture. Liquid manure develops them very energetically. By this plan they will bloom in July, and continue so for two or three months. I have seen a plant produce near five hundred of its pretty and attractive flowers.

ON GROWING THE RONDELETIA AS A SPECIMEN PLANT.

BY G. SMITH.

In its natural state of growth, and without artificial assistance, there are many attractions possessed by the *Rondeletia*; in a collection of handsome stove plants this is one which is sure to draw attention;

especially *R. speciosa* and *R. speciosa major*, the brilliant trusses of the rich orange-scarlet coloured flowers of the latter making a striking display. A consideration is also due to the ease with which it may be made to blossom at almost any season, through a suspension of the system of "stopping," and to the fact that, although its natural habit is loose and straggling, it may readily be trained to a nice bushy specimen plant. My system of treatment is based on natural principles and a consideration of the climatic conditions of the locality where the *Rondeletia speciosa* flourishes in its native soil, which is the island of Cuba, where the temperature averages about 75° Fahrenheit, and where during the period of its growth the air is charged with a considerable amount of heat and moisture. I treat the young plants thus:—In spring, when they are rooted, and ready to transfer from the cutting-pot, I place them in a mixture of one-third turfy loam and two-thirds peat soil, adding a little silver sand, and using three-inch pots; they should then be placed in a span-roofed pit, stopped at the third joint from the base of the shoots, and plunged in a warm medium over a hot-water tank, that root action may be excited, and an imitation of the terrestrial temperature in the tropics, which exceeds very much that of the atmosphere, may be produced. The temperature of the plunging medium may be 80° Fahrenheit, and the atmospherical from 70° to 85°, varying the amount according to the degree of solar heat, with a nocturnal temperature of 60° to 65°. As the incipient buds break, and the young shoots become developed, a portion of air should be admitted, to induce them to assume a robust habit of growth. Syringings should be given them morning and evening, and the pit closed early in the afternoon, to keep up a warm humid atmospheric medium around the plants. After the pots are filled with roots, and before becoming cramped, they may be potted into five-inch pots, in the following materials intimately blended: one-third turfy loam from an old pasture, the turf in a partial state of decomposition, one-third fibrous peat, and one-third good rotten dung, with a portion of charcoal in small pieces, and silver sand, with plenty of drainage. They should then be replaced in the pit and partially plunged. When the shoots have attained four inches in length, they may have the points pinched out, and this system of stopping should be repeated till the plants are of the required size—that is, say five or six times, never allowing the shoots to grow above four inches betwixt the periods at which such operation is performed. If the plants are required to bloom in the spring, stopping may be discontinued at the termination of the second autumn. After the second potting, as the plants increase in size, they should be repotted when they require it, using the materials in a coarser state than before, to secure the requisite degree of porosity in the soil, and to make it permeable to air and water, which is of the utmost importance. They must be kept growing under precisely the same conditions as heretofore, excepting that more air be given as the plants increase in size; and weak

manure, in a highly clarified condition, may be supplied once a fortnight to the plants, which will accelerate their growth very much. As autumn approaches, the plants may be removed to where there is a drier atmosphere—a span-roofed stove for instance—less humidity kept up, and the supply of water reduced, with a gradual reduction of temperature, till it recedes to from 60° to 70° by day, and 55° to 60° night. This will be found sufficiently high during the season of comparative repose, till the vivifying influences of the great source of light, heat, and vitality arouse the vital functions to renewed activity, when the treatment before described may be again resorted to, potting the plants as they require it. When the plants have undergone their last stopping, a reversal of these conditions is necessary; the plants may be allowed to become cramped at the roots, the humidity both of the soil and atmosphere should be reduced, and waterings of liquid manure discontinued, till all the flower-buds are distinctly visible, when they may be renewed in a copious manner. Under this treatment the *Rondeletia* will be found to bloom in perfection, and will have made beautiful plants by due attention, amply compensating the grower for his labour, and affording, by its handsome and scented blossoms, a treat to all who delight in beholding a beautiful flower.

ON PREPARING THE CHRYSANTHEMUM FOR EXHIBITION.

BY A PRACTICAL GARDENER.

MUCH attention having been devoted to this favourite flower of late years, and so many excellent varieties being annually exhibited, lead me to forward the outlines of management for preparing specimens, to which end my efforts have been successfully directed for some considerable period. I must premise that the cultivation of *Chrysanthemums* for single blooms is totally different from the management required when the beauty of the plant is the object. By taking off the tops of the plants in July, and striking them with slight bottom heat, they will be ready for potting into five-inch pots in August, and they may stand out of doors until September, when they should be repotted into the next size in rich compost formed of half good loam from rotted turf, one-fourth dung from a melon bed, and one-fourth decayed leaves. This is to be well mixed, and laid together a few days. In potting from one size to the other let the ball be undisturbed; and let them be watered and have all the air they can in mild weather. They will grow rapidly, but this is no object when the flower is to be cut. Let them stand near the light, and have plenty of room and no touch of frost. By no means attempt to hasten or retard them, let the bloom have its natural growth; and if there is reason to fear they will be too forward, keep half the

stock on the shady side of the house, or temporarily shade them. But as, in a collection, there will be but little danger of missing the season with some, or rather with all, it is better to let them all go on their own way, for a bloom once checked will never open freely, and a variety naturally good may be easily spoiled by sudden changes of heat and cold. It is almost better to miss altogether with a particular variety, than to attempt to advance or retard it.

When the buds show, be on the look-out for the side ones, that they may be taken off at an early stage, and the whole strength thrown into the single flower. In this way they may be flowered thrice the size that the blooms would come in the ordinary way. The most that should be attempted is to shade the flowers from any very hot sun that may occur in October and November; and above all things, even when giving air, see that there be no wind or draught playing upon them, for wind is worse than sun to an open flower. Those which are to be shown as plants, should be either dwarfed for small pots, or stopped and grown the whole season pretty sharply for larger specimens. Beginning with the cuttings, which should be provided early in the year, while they are in small pots and with four pair of leaves, pinch out the heart and let the laterals grow three inches long, when they may be pinched also; and as they advance there will be plenty of side shoots to form a good bush. They may, during the first two months of the year, be in cold frames, covered against violent frosts, but having all the air in mild weather. If the plants are bushy enough, let them be potted into six-inch pots, in the compost already mentioned, and as soon as they have begun to grow fast, top some of the most vigorous shoots. In fact, begin by these means to get your plants into good order and form. In May, change them to larger sized pots—eight or nine inch ones—and let them stand in an open situation, with the benefit of all the sun, but plunged into some dry medium up to the rim of the pots, to prevent the sun from burning the sides of the pots and damaging the fibres. They need not be taken up till the beginning of October, when they may be removed into a house by themselves, or in any place where they will be kept in a strong light and be protected from winds and frosts. If the pots are pretty full of fibres they may want another shift, but if not very full, they may be bloomed in their present pots. If they are confined and cannot be removed into others, give them at every fourth watering liquid manure, such as would be made by putting a good shovelful of thoroughly decomposed dung into eighteen gallons of water, and well stirring them together for two or three days. This will be as good as repotting. Regulate the number of blooms so as not to have them crowded; and, above all things, take especial care that they are not at any time distressed for water during the whole period of their growth, for the certain result of this would be discoloration of the leaf, or its falling off altogether.

The plant will require supports, which should be neatly put to them, so that the foliage may conceal them. The plants to show

dwarf should not be detached from the tops of plants until they have made the best part of their growth in July; when they have struck well, pot them into five-inch pots, plunge them in the most open situation where they have all the sun, and take off the tops down to about three pair of eyes; this will cause them to be neat and bushy, and the open situation will prevent them from running up high. They may be continued on the spot till the beginning of September, when they may be shifted into six-inch pots, using the rich soil before recommended. Still keep them plunged, but allow no frost to touch them. Remove them to the house in October, and let them have air and moisture, with plenty of light, and the pains taken with them will be fully repaid at the blooming season.

ON THE MANAGEMENT OF HERBACEOUS CALCEOLARIAS.

BY FLORISTA.

NOTWITHSTANDING the difficulty which is often met with in wintering these plants, I am assured, from the results of long experience in the culture of these lovely gems of Flora's kingdom, that all who strictly conform to my plan of management need fear no failure, which I will briefly detail. If we commence when they are past bloom, which is generally about the end of June, we should, as soon as circumstances will permit, divest them of their flower-stalks and dead leaves, and top-dress them about an inch deep with silver sand and yellow loam in equal portions, taking care that all the ripe joints of the young shoots are covered for about half that depth; afterwards place them in a cool shady situation until the beginning or middle of September, giving occasional waterings during that period. By this time it will generally be found that most of the shoots so covered have emitted a sufficient number of roots to admit of their being removed with safety from the parent plant; this operation I perform in the same manner as is generally done by gardeners in the removing of layers of Carnations. I then plant them in five-inch pots, or smaller if necessary, and place them in a frame on a gentle bottom heat of tan, taking care at this period to guard against the direct influence of the sun until they are fairly established in their pots. The compost I use for the first potting is, three parts of yellow loam, four of well-decomposed leaf-mould, one of cow-dung, which has lain at least twelve months, and two of silver sand. This soil I vary as the plants strengthen and approach their flowering season, until the proportions are five of loam, two of leaf-mould, two of cow-dung, and one of silver sand. From the time the plants are well established in their pots I give them no particular attention beyond that of slightly fumigating them once a week, a routine to which I subject them during their whole period of growth, until about the beginning of

January, when I shift them into larger pots and place them on the front stage of a Geranium-house, the temperature of which is kept at forty-five degrees, with an exceedingly humid atmosphere. I ought to observe that in shifting I always sink the ball a little, to admit of a top-dressing of fresh mould being put over the ripe joints of the young wood, which very soon emit roots, an operation which tends materially to increase the size and strength of the plants. I am also very particular as to drainage, never allowing a particle of the old drainage to be removed; and by the time they are placed in their flowering pots, I have a complete open drain from within a few inches of the surface down to the bottom of the pot, with the exception of the layers of fresh turf, which I always introduce between the mould and potsherds. This temperature and a careful attention to fumigation I consider the most essential points in the cultivation of Calceolarias of this class; for if they once become infested with green fly, no art can prevent the disfigurement of their foliage, and few plants are more impatient of an excess of moisture at their roots than herbaceous Calceolarias. It should be observed, however, that in fumigating, care must be taken to avoid doing so in excess; for if smoke is applied to them in the same quantity as would be proper for plants of a hardier nature, they will be certain to suffer from its effects. In watering, I am guided more by the appearance of their foliage than by the mould in the pots; if they are in a proper state, their foliage will be found every morning to be fringed with drops of dew, which is a certain indication of health. When this has not been the case, I have always found that my plants were either too wet or too dry. By using the above compost, attending to temperature and atmospheric moisture, avoiding an excess of water at their roots, and slightly fumigating once a week, I have grown many of the beautiful, but now old-fashioned, varieties to the size of between two and three feet in diameter in the head of flowers. But this cannot be effected unless the remarks here offered are carried out to the letter, and which contain all that need be practised in the successful treatment of this most engaging class of plants.

ON THE FORMATION OF WALKS.

BY A PRACTICAL LANDSCAPE GARDENER.

A LARGE amount of the pleasure and gratification afforded by a garden necessarily depends on the manner in which its walks are constructed. Walks which are so ill made or of such improper materials as to become cloggy and tenacious during and soon after wet weather or a thaw, and those which have a coarse harsh surface, through very loose materials, tend much to deter persons, especially ladies, from making so frequent use of their gardens as a pleasure and relaxation as otherwise would be the case, and in consequence deprive them of a great deal of rational enjoyment and healthy

exercise. The standard for good walks and drives is one that is dry, hard, and firm in all kinds of weather, and kept constantly smooth and even; the more closely this standard is approached, the greater will be the comfort and ease of the proprietor and his friends. The first-named requisite, dryness, is attainable by using suitable materials not only for the surface, but also for the foundation; by giving the walk a gentle but gradual slope in some direction, so that it may have a decided fall or inclination in the direction of its length, as well as a slight rise in its centre throughout its whole extent; and lastly, by the placing of suitable drains, to carry off the water at the lowest and intermediate points. In the ground formation of a walk, the first consideration should be to obtain a firm bottom, which should be pared as smoothly as possible, keeping it from three to six inches higher towards the centre, the height being governed by the width of the walk. On both sides let the ground be sloped down gradually, for the extent of about eighteen inches, to the extreme margins, where it should be from six to nine inches deeper than in any other part. These are for filling with a coarser material than the walk itself, and serve as drainage; they should communicate at intervals with the ordinary ground drains, so that any water accumulating may be speedily let off: this is an essential plan in securing a dry walk. At intervals, where the walk is deepest, and where it would appear likely for water to collect, square holes should be cut, lined at the sides with slates, and covered with grates; these should communicate, by means of short rubble drains, with the nearest common drains, but at such a height as to receive the overflow of water merely, the sand and fine gravel which will in time accumulate at the bottom of the hole being removed from time to time. A walk should have at least nine inches of material upon it, and a drive twelve or fifteen inches; fine gravel for the surface need not be laid on deeper than three inches, the rest being either gravel of a coarser kind, or flint, rubble-stone, etc. Walks of three feet width may be raised two inches in the centre when filled, giving an additional inch of elevation for every yard in breadth up to a certain extent; but very broad straight walks present a better appearance if formed perfectly flat from side to side, which flatness adds much to the effect, especially where the grass is kept low and neat. That most extensively employed material, gravel, is very variable in different parts of this country, and not unfrequently requires some artificial preparation or admixture, before it is brought to a proper state for use. Some, which contains clay and lime, though of good binding quality, is liable to the objection of being sticky in wet weather, and to considerable breaking up during frost; here the addition of some sandy and drier kind is desirable. Again, sea gravel will not bind at all without a slight mixture of a limy kind, or of pulverized clay, or even strong loamy soil in a small proportion, as a fifth or sixth part. When settled down and quite set, a walk of this material forms one of the best possible surfaces. The perfection of a good walk consists in its smoothness, and freedom

from rough stones, therefore a thinly spread upper stratum or coating of gravel finely screened or sifted should be laid on, or the whole of the surface must be finely raked, so that no stones of large size are left to be kicked up in dry weather. If gravel be scarce, road scrapings, if tolerably free from dirt, and thinly laid on, make a good surface material. The best coloured gravel, where choice may be exercised, is the deep orange-yellow kind, so abundant in the London district—this has considerable richness and warmth of appearance; whitish and lighter-tinted gravels have too conspicuous and cold an air to make their adoption desirable when any other is to be had. Nothing makes a walk look more slovenly and untidy than rough or deep edges; it is of importance therefore to have all grass verges kept low, neatly clipped, and smooth throughout, which at once indicate a refined taste in the manager of a garden.

The period at which walks should be laid down is summer and autumn, which are the best seasons for any kind of new ground work, as the earth is then dry and can be easily moved, as well as has time to settle. I would, in consideration of these and other advantages which my experience has led me to observe, strongly advise benefit to be taken of fine weather towards the close of summer and early autumn, for the performance of all operations necessary in the formation of garden walks; the whole of August and September being in the main the best time, and the period of which, in my practice, I always avail myself for this kind of work.

ON FLOWERING HYACINTHS FOR EXHIBITION.

BY THOMAS SELLERS, BATH.

I SEND the following remarks on the method I have successfully adopted for blooming the Hyacinth in the spring months, which, if you think worthy of a place in your useful publication, you are at liberty to insert. In the first place, it is important that a proper selection be made in the choice of bulbs, which ought to indicate great strength; for as the best sorts sometimes make poor flowers, such only should be chosen as show the greatest substance. The soil which I make use of consists of good free loam and well-rotted cowdung, with a small portion of sand; yet I would remark that this is not of great importance, as the matter to be developed is the secretion of the previous season, and therefore only requires to be placed in favourable circumstances to forward its proper development. The bulbs being planted in thirty-two-sized pots, I place them in a cold pit or frame, with a dry flooring, and cover the whole over with dry sawdust, at least six inches deep, above the pots. This material being kept perfectly dry, the bulbs are secure from frost, and likewise from premature excitement. When spring arrives and the leaves begin to push, I raise the pots above the sawdust, to prevent that blanched appearance which this tribe often presents when brought

from the old tan-heap, which is but too often their abode until wanted for forcing. As soon as the plants begin to grow I expose them as much as possible, merely protecting them from frost and rain. When nearly in flower I remove them to a shaded place, and fix over them hand-lights, elevated upon inverted flower-pots under the corners, for the twofold purpose of making room for the tops and giving them all the air possible. When the day is fine and calm, remove the top of the light entirely. In such a situation they will develop themselves in their greatest perfection, and may be preserved in full beauty for double the time which they would be if exposed to the sun.

THE BULB GARDEN.

BY CLERICUS.

THERE are few classes of plants which are so useful for spring decoration as the bulbous, which affords a gay display during the early months of the year, then dying down, to be succeeded by tender annuals and bedding plants, without which the summer and autumnal attraction of the parterre would not be complete. Of all bulbs which are suited for an edging to flower beds or borders there are none which can compare to the *Crocus*, and where the plan is of a geometrical or regular character, a good effect is produced by a skilful combination of colours, made by judiciously planting the various kinds of *Crocus* along the sides of the beds, or in continuous lines. A selection of the best kinds should comprise the following: *Crocus vernus*, blue; Cloth of Gold, yellow; Scotch, striped, this is one of the earliest; Bride of Abydos, white; Ne plus ultra, blue and white; Prince Albert, purple; Queen Victoria, white, very pure; and Othello, very dark.

Snowdrops, too, should be extensively planted, but are better grown in patches, distributed along the sides of shady walks, or snugly enconced in rockwork, where they are always found to grow very fine and attain a large size. A similar bulb, the *Leucojum vernum*, or Snowflake, is also well adapted for patches in open beds; it is of taller habit, and produces larger flowers than the Snowdrop, and deserves to be grown by every lover of the tribe. Those who order this bulb should be careful to secure the true one, as *L. aestivum* is generally sold under that name, whereas the true *vernum* is a far more interesting plant, flowering earlier, and bearing blossoms of double the size.

Many of the varieties of *Alstræmeria* are very hardy, and if planted in a dry loose soil, continue to flower for years without requiring farther care. The handsomest varieties are *aurantiaca*, *linearifolia*, *plantaginea*, and *psittacina*. As auxiliaries to the foregoing the *Narcissus* tribe is valuable, being plants of the most easy culture, requiring transplanting but every third year; I have often been puzzled to understand why they are not much more extensively

grown, certainly not because they are too common, the best varieties being unfortunately scarce. The value of Narcissus flowers for indoor decoration in early spring should not be overlooked. Although more than sixty species are known, the choicest are *Narcissus biflorus*, the two-flowered, yellow and white; *N. bulbocodium*, the hooped-petticoat Narcissus; *N. poeticus*, white; *N. Jonquilla*, the Jonquil; and *N. Tazetta*, the Polyanthus Narcissus, a very elegant species, the stalks being many-flowered; of this there are numerous hybrids, the most select are *Bouquet sans Pareil*, *Couronne Blanche*, *Grande Monarque*, *La Belle Normande*, and *Soleil d'Or*. The above comprises a small but excellent selection, all well worth growing. Those who make a practice of purchasing annually Dutch-grown roots for blooming in pots or glasses, should take particular care of the roots after flowering, and early in October plant them out in the border, and they will bloom in great perfection. For small beds I would recommend the rare and beautiful Scillas: *Sibirica*, blue; *bifolia*, lilac; *bifolia alba*, pure white; *carnea*, pink; *præcox*, dark blue; and *Italica*, pale blue. They all succeed well in a light soil, and multiply rapidly by means of offsets; their culture is very simple, for they merely require planting in the autumn, the bulbs being placed from two to four inches under ground, according to their size, and they may then remain year after year, the patches of bulbs increasing in size, until it is required to form new plantations; except for this purpose, or for the sake of increase, the less they are disturbed the better.

The Babianas are a very pretty genus of hardy dwarf-growing bulbs, of different shades of blue, red, and yellow, which flower abundantly during the months of June and July; they are very attractive, showy, and generally admired. The selection should include *atrosanguinea*, *cærulea nana*, *Kermesina*, *rubra cyanea*, and *tubiflora*. Fritillarias are of easy cultivation, and singularly pretty, as are the chequered kinds, *meleagris* and its varieties; yet *Fritillaria imperialis* has an imposing and majestic appearance—there are four varieties, *imperialis flava*, the yellow Crown Imperial Lily; *imperialis foliis variegatis*, with variegated leaves; *multiplex*, Crown on Crown Lily; and *rubra*, the red variety. They are perfectly hardy, and will grow in anything but stiff clay; they should be planted in October. Of Gladioli there are many beautiful kinds, both species and hybrid varieties, and no bulb garden should be without a number of these plants. The season of flowering depends much on the time of planting, some blooming in the early part of summer, and others, such as the tall-growing varieties of *psittacinus*, *floribundus*, and *Gandavensis*, later in the autumn. A light rich loam, with good drainage, suits them well. The varieties being so numerous, and all good, it is unnecessary to offer a selection. Ixias are a handsome genus, which have unaccountably been much neglected in this country, as the slight protection which they require in winter is easily afforded them. The following are the choicest, many of them new, and all have been

grown as associates to the *Ixias*, which they exceed in brilliancy and variety of colouring; the annexed are deserving of cultivation, but they are all liable to change in colour: *Cærulea*, slate coloured; *Nigricans*, intense purple, approaching to black; *Pavonia*, white; *Tricolor*, scarlet and black; *Alba*, white; *Bulbifera*, yellow; *Rosea*, bright rose; and *Variabilis*, changeable: all having a yellow centre. All who have seen a good selection with the sun on the bed must be impressed with the beauty of the sight, and brilliance of tints. Early Tulips, both double and single, will not be overlooked by all establishing a collection of bulbs. There are also several choice and desirable bulbs in the genus *Muscaria*, of which the best are *botryoides*, *alba*, *comosum*, *moschatum*, *macrocarpum*, and *pallida*. Lilliums, in pots or vases, and in the open border, along the outside of a bulb garden, are a great source of attraction; I would recommend the following especially, *Lancifolium album* and *rubrum*, together with the white, yellow, scarlet, and purple Martagons. For a bed in the centre, few things make a better show than two or three plants of *Tritomas*, both *media* and *uvaria*; their large, brilliant, dense spikes of flowers concentrating the eye towards the centre. To the foregoing I may add briefly several miscellaneous bulbs not frequently grown, but of much beauty and merit, as *Allium acuminatum*, *acutum*, *Moly*, *nigrum*, *roseum*, and *stellatum*—the first variety is extremely neat in appearance and of showy colours; *Camassia esculenta*, another very handsome plant, which succeeds best in peat soil and shaded situations, blooming in June; *Ornithogalum bulbiferum*, *montanum*, *nutans*, *refractum*, and *umbellatum*, *Anthericum liliastrum* and *sulphureum*: all are very hardy and early-flowering varieties. *Pancratium maritimum* is a fine bulb, which no collection should be without; *Anomotheca cruenta*, a pretty dwarf; *Brodiaea congesta*, growing two feet high, and bearing a coronet of blue flowers; *Watsonia fulgida*, bright orange-scarlet, no garden should be without this hardy bulb; *Zephyranthus candida*, or “flower of the west wind,” which I have proved to be perfectly hardy, however delicate several of its brethren have proved. In concluding this brief but select list, I must not omit to recommend a choice collection of Hyacinths, of various colours, which will afford a grand display up to the month of June, when they,

together with most bulbous plants, give place to other but not more attractive flowers.

THE CONSERVATORY.

BY A NOBLEMAN'S FLOWER GARDENER.

THE principal point wherein a conservatory differs from a greenhouse is that the former is better adapted for the growth of large specimens than the latter; in the first they are generally planted out in beds, already prepared for their reception, or in large tubs and boxes, whilst in the latter erection they are kept in pots, and mostly placed on stages. The general end of the conservatory is a building to contain large and fine specimens; but in the greenhouse the plants are usually kept pretty small and, by frequent propagation, young. The most appropriate situation for a conservatory is either in the flower garden, where it ought always to be a detached structure, or adjoining the mansion, to which it may form a wing.

In erecting a building of this kind, the great object to be kept in view is the admission of abundance of air and light. For the former purpose all the sashes should be made moveable, in order that the roof and sides may be taken away at pleasure, whenever necessary, and as regards the latter, all such conservatories as have walls at the back and ends are highly objectionable; neither do I approve of such erections being very lofty, for, were expense no consideration, the plants are liable to become drawn up, presenting too frequently slender naked stems, and if exotics are well cultivated in houses not exceeding twenty or twenty-five feet in height, all that is reasonably expected from them may be obtained. Most small conservatories have the floors paved, and the plants are arranged in large pots and boxes, which, for such a class of houses, are the best; for when the plants are grown in beds they soon become too large, and grow coarsely; often the most worthless grow up rapidly, and destroy the more rare and valuable, which frequently are of more slender habit. Conservatory plants cultivated in beds not only grow too luxuriantly, after a few years requiring to be reduced in size by close pruning in, or removed altogether, but most do not flower so well as they would do in large pots; neither can they be removed so readily in case of disease, or at those periods when they are out of flower, or set in the open air out of doors during summer. I admit that boxes, tubs, or vases, etc., if ever so ornamental, will be objectionable if in too great a number or of too large a size. To remedy this objection, the floor may, however, be made hollow, and covered with an ornamental or neat iron grating, instead of a solid pavement, and constructed of separate pieces, so as to admit of the larger boxes being placed beneath, while the smaller pots and vases are distributed through the house, in a manner calculated to produce the most elegant and pleasing effect.

Where this additional expense, however, is objected to, and it is preferred to plant the specimens in a permanent bed, such parties may perhaps consider the following observations serviceable. Let the whole of the ground-floor of the house be excavated, four feet in depth being a convenient space, and in the centre of the intended bed a drain should be made to carry off the superfluous water; over this drain, as well as over the whole surface of the floor, lay a stratum of rough stones or brickbats to the depth of about a foot, upon which the soil for the plants to grow in should be placed. In preparing the bed, it will be of advantage to place a layer of cut and dried turf, to prevent the fine soil settling down among the drainage below; it should be closely packed, and beaten down. Over this the compost soil is laid, which should have been in a state of preparation several months previously, by being often turned over and mixed, to sweeten as it is termed, and should consist of light yellow loam and peat soil of a sandy nature, which will suit most things, except Orange trees and Camellias. The bed, being filled and moderately trodden down, is ready for the reception of the plants. Where Oranges and Camellias are to be grown, a difference of soil is absolutely necessary; as for the former, it can scarcely be too strong and rich, if sufficiently porous to admit of water passing through it, and for the latter a light and rather rich mellow loam is to be preferred. As to the general management of conservatory plants, the whole may be comprised in a few words. The temperature should never be allowed to fall below 40° , and in general should not much exceed 50° , and all possible air should be admitted, even in winter, if the weather be suitable, and this may be said to be the great secret of growing conservatory plants well. Where the specimens are planted in beds, it is advisable to exercise caution that they neither become too dry at the roots nor the soil soddened by an excess of it. If grown in large pots or boxes, there is less danger of falling into either extreme, and if the evil exist it is much easier rectified; indeed, in the latter case too much dryness may be apprehended, and especially from the use of tubs, where the water generally passes down outside or through chinks, which tends to keep the ball dry, in which case it is better to have tubs and boxes lined halfway down with thin zinc. Frequent watering, by the application of the syringe, is very beneficial, by cleansing the leaves and branches, and during summer should be applied at least twice a week, and in winter, during mild weather, at least once a fortnight. In respect to tropical plants, water can scarcely be applied in this manner too abundantly, but should in their case always be accompanied with a corresponding degree of heat. For the proper distribution of water over the foliage of conservatory plants it is necessary to provide a small water-engine; those on Read's principle being best.

With the exception of climbers, I prefer growing the rest in tubs, boxes, vases, and pots, regulating these according to their several habits and sizes. Great judgment is necessary in the judicious selection of con-

servatory plants, and a much happier effect can be produced by a well-selected few than by a heterogeneous mixture of many species. If the intention be to have an abundance of bloom through as long a period as possible, then such as are fine free-blooming species, not of very robust habit, should be chosen. In conservatories of limited dimensions, care should be exercised that too many species of a genus, or too many of a colour, be not introduced. Attention should also be paid to procure good specimens in the first instance, and sufficient room should be allowed to retain them in that state, and they should be frequently turned round, to give them the benefit of the light. Some discrimination is also necessary in their arrangement, so that all sun-loving delicate plants, be placed forwards, and the rest in the rear or middle. Cleanliness is absolutely necessary, not only for the appearance of the house, but for the welfare of the stock. The operations of cleansing, watering, and arranging are better done in the early part of the day; and as this is the highest in grade, and generally the most imposing in appearance of all plant-structures, so it should have the more scrupulous care and greatest nicety in keeping; all dead leaves and branches should be removed as soon as they appear. Many conservatory plants cannot well be propagated by cuttings, and must therefore be multiplied by budding, grafting, layering, by seed, or division of the roots, as may appear more suitable in each case.

CHINESE FLOWER GARDENS.

THE Chinese gardens are of a peculiar character, and differ altogether from ours in their arrangements, while the care bestowed upon them by their possessors exceeds anything of which we could have formed an idea. To each branch, often to each leaf of a tree or shrub, the utmost pains are taken to give the appropriate turn, and the gardeners may be seen sitting constantly beside the plants, and employed in binding and pruning them, in order to accomplish the desired form. The production of the greatest variety and contrast of colours is the chief object of the Chinese flower-gardeners. Strangers to refinement and the tender emotions, the Chinese have no taste for the pure and tranquil enjoyment which the perfumes of sweet-scented flowers yield. It is only in gaudy colours, and by a marvellous skill in developing singular growths, that the Chinese gardener excels. Long and straight alleys run directly through their gardens, and are bordered by low trees of one and the same species. We visited these gardens (in the vicinity of Canton) in the month of November, and remarked the following objects: close to the entrance were large masses of *Chrysanthemums*, the blossoms of which had attained an extraordinary size; then followed whole plots of Citrons and Shad-docks, which were raised in pots, and loaded with fruit; and it was remarkable that all these fruits were divided into segments, and thus formed permanent monstrosities, which were further propagated by

handsome appearance, whether in the conservatory or set out on the lawn.

The pendulous character of the flowers makes the plant look better when grown as a standard; all the varieties are rapid growers, and the best method of propagation is by eyes, in the same way as vines are treated. If the last season's growth be cut into pieces, with an eye to each, and then potted one in a pot, and placed in a gentle bottom heat, they will soon strike; they require to be kept moist. During the winter they should not be forced much, but in spring they will require potting, and may then be plunged in a bark bed, or placed in a warm stove; as they make side buds these should all be rubbed off, with the exception of two or three nearest the top, and this must be continued until the stem has attained such a height as the standard is intended to be, which ought never to be less than two feet and a half, and may be much more. When this result has been attained, the top will require to be pinched out, which will cause the few side shoots to form branches rapidly. Up to this time the plant should be frequently shifted into pots a size larger. If the heat be genial the plant will make rapid progress, and when the laterals have made about four inches growth pinch out their ends, in order to induce the production of sufficient branches to make a head; it is necessary, however, to take away such as would tend to make it too close, or spoil the shape. The plant may be allowed to remain in the stove until bloom is shown, when they may be removed to the greenhouse or conservatory to perfect their flowers, and where it will continue to grow and bloom a long time, filling the air with a rich perfume. The red and orange species, *Datura sanguinea* and *D. lutea*, are not of so rapid growth as *D. arborea*, the white, and *D. Knightii*, the double white, but the treatment of all is similar. I have always found them prosper best in a mixture of loam, peat, and dung from a stale hot-bed, using about one-half of the latter ingredients. If it be desired to place the plants on a lawn, it is important to select a sheltered situation, where they may be screened effectually from wind, for the wood is very brittle, and the foliage being large, they are soon injured if this precaution be not attended to. Some prefer plants for out-of-doors decoration which have been allowed to take their own course, without attempting to form standards of them, although in my opinion the former plan does not show off the blossoms to so much advantage as the latter. If left to make their natural growth they may be planted out in June, and should have stakes applied, to hold them in the same manner as a Dahlia, and had better be plunged in the ground in pots, which enables them to be taken up for in-door protection during the winter. The *Datura* is rather an ill-growing plant if not attended to by pruning annually, otherwise they will be too thick with branches, and weakly. The red spider is their greatest enemy when in the house, but moisture with sulphur and water, occasionally syringed over and under the leaves, affords an easy means of preventing the ravages of this destructive enemy. The bloom from a mature plant

is extremely attractive, but they will flower very well from an eye the first year.

ON THE TREATMENT OF LEONOTIS LEONURUS.

BY JOHN HINE, PRESTON.

HAVING been very successful in growing this very handsome but little cultivated autumn-blooming plant, I shall be glad to see the following brief remarks in your interesting and useful little *Cabinet*. It will be found one of the most accommodating inhabitants of the greenhouse, being equally as hardy as any of the Fuschias, and as easily grown. About the beginning of March, plants struck from cuttings last summer will have begun to grow; they should then be shifted into thirty-two-sized pots, filled with good loam and a little peat and silver sand, having plenty of drainage, consisting of chopped turf and well-rotted manure in lumps, about equal parts. When repotted, place the plants in a light part of the greenhouse, where they will get plenty of air; they must have but little water for the first two or three weeks, after which they may be set in pans, but they must not be allowed to stand constantly in water. By the first week in May they should be finally shifted into the pots in which they are intended to bloom (No. 4); about the middle of the month, when all danger from frost is over, plunge the pots up to the rim in a south border and supply them plentifully with water, and once in eight or ten days give them some liquid manure. They will require nothing else but tying up, and occasionally turning the pots round, to prevent the roots from running into the border, till the end of September or beginning of October, when they should be removed into the greenhouse, where they will flower for eight or ten weeks; after this they may be cut down, put under the greenhouse-stage, and kept nearly dry till the following growing season. Treated in this manner, *Leonotis Leonurus* forms handsome plants of from five to six feet in height and from eight to ten in circumference, clothed with foliage and bloom from top to bottom.

HINTS ON THE MANAGEMENT OF CEREUS SPECIOSISSIMUS.

BY J. G.

It is generally considered necessary for the successful cultivation of most plants that a knowledge of their natural habitat should be known, but many of this tribe are exceptions to the general rule; we may name, for instance, *Cereus speciosissimus*, which is a native of South America, and was for many years treated as a stove plant, potted in the poorest soils, such as broken bricks, old lime rubbish,

and the like, kept constantly excited with heat and moisture; in this case, departure from the treatment that their natural localities would suggest has rendered it a desirable plant to every person that possesses a greenhouse.

The compost with which I pot my young plants is equal portions of peat and strong yellow loam, and a little river sand, all having been well exposed to the weather for some months previous. I never mix the soil before it is wanted for use, when it is well sifted and the lumps placed over the potsherds for drainage. When the plants have attained a proper size for blooming, I add more of the loam in repotting them, particularly to *C. speciosissimus*, and in all cases give plenty of drainage. I also occasionally water with a little weak guano or manure water, when the plants are young and growing.

The best time for propagating by cuttings is when the plants are growing freely. I make them of whatever size can best be spared from the plants; and those that are of young and unripe shoots I lay on a dry shelf in the greenhouse for a fortnight, to dry up the sap, which prevents them from rotting, and causes them to emit roots much sooner. They are planted singly in small pots, and placed in a moderate hotbed frame; when they have filled the pots with roots, they are repotted and placed in an intermediate house, where they remain for the summer, and receive a good supply of water. In the autumn they are allowed to become quite dry, and are wintered in a dry airy part of the greenhouse. In spring, they are again removed to the intermediate house, and very little water is given them, which is increased as the season advances. By the end of the second summer they will have grown to the size of good blooming plants; and in the autumn they should be placed out in a warm airy part of the garden, to ripen the shoots thoroughly. About the usual time of housing other greenhouse plants, they should be again dried, and put, as before, in the greenhouse. I place the first for forcing in the intermediate stove, about the beginning of February, and continue a succession till they bloom in the greenhouse, which is about June. Such plants will bear the greatest extremes of dryness and moisture, and without proper attention is paid at the season of rest to keep them quite cool and dry, they never will bloom properly. The forcing must be commenced at a low temperature, and water at first given very sparingly; when they have begun to grow freely, and the bloom-buds are well started, they must be watered, not by a continual dripping, but by copious applications, and at intervals of a fortnight, during the growing season, with liquid manure. When the bloom-buds are sufficiently advanced, I thin out all those which are large and small, leaving them as near one size as possible, and at proper distances, to allow the blooms to expand. When they have flowered, I keep the plants rather dry for a short time, and place them in a cool shady part of the greenhouse, or under a north wall. In a few weeks they will again assume their usual firm and healthy appearance, and begin to grow; then I clear off all the decayed

blooms and seed-pods, and place the plants for the autumn in the garden, in a south aspect, where there is a free circulation of air, giving them a good supply of water; after this they are moved to the greenhouse and treated as before. I train them to iron stakes, made to fit the outside of the pots or tubs, and fasten them with wire. Attention should be paid to early training, and to stopping all shoots as soon as they attain the required height; all useless side and bottom shoots I rub off, and occasionally some of the old shoots are cut out and replaced with young ones.

When in full bloom, *C. speciosissimus* is one of the most brilliant flowering plants that can be introduced to the greenhouse, conservatory, or drawing-room window, and being of such easy culture entitled to be more extensively grown. There are several very fine hybrids which are also deserving companions to the above.

DESIGN FOR THE GROUNDS OF A VILLA RESIDENCE. COMPRISING EIGHT ACRES.

BY T. RUTGER, ESQ.

THE accompanying design comprises about eight acres, and has a lodge-entrance leading to the house, and from thence to the stables. A part of the ground is supposed to be divided off by a wire fence, for a paddock, with a cow-house and yard, which can be entered from the public road. At the west end of the house there is a conservatory, and at the east end are the offices, which are entered from the road leading to the stables. At the north entrance of the house a flower garden is shown, with a place in the centre, destined for an architectural structure for embellishment. The lodge, being near to the garden, may be occupied by the gardener, who might be employed as the general manager of the out-door department. The lawn at the front of the house may be dotted with choice evergreens, and the clumps with dwarf shrubs and flowers. There is a walk leading round the southern part of the premises, with an alcove at the south-east, and also one at the south-west of the same. What remains may be understood by the reference.

Reference.—1. Reading or tea room. 2. Aviary for fancy birds. 3. Bowling-green. 4. Laundry and brewhouse, with yard. 5. Piggery. 6. Poultry-court, and dove-house in the centre. 7. Stable-yard, stables, and coach-house. 8. Dung-yard, with entrance from the public road. 9. Frame-ground, with an erection for tool-house and mushroom-house. 10. Compost ground. 11. Forcing-house department, with sheds. 12. Room for under-gardener. 13. Kitchen-garden. 14. Slips which can be appropriated for fruit trees, small fruit, etc. 15. The lodge. 16. Cow-shed and yard. 17. Public road.

REMARKS ON DODECATHEON MEADIA.

BY AN ADMIRER.

THE delight with which the botanist views a newly discovered plant can only be conceived by the student of nature; it seems to expand his ideas, and give him new conceptions of the wisdom of the Great Creator. He contemplates with admiration the harmony of its parts, which he finds so happily adapted to its native situation on the globe; he learns by the character of the plant the climate to which it belongs, and he soon conceives the utility of the individual plant to the grand link of vegetation by which the animal world is supported. The pleasure that the botanist enjoys, when he first meets with an unknown plant, is not to be described. He deems it as the most important event of his life, and he joyfully bestows on it the name of some esteemed friend or eminent countryman: his fancy pictures it growing under cultivation with his native plants; his immediate acquaintance covet it for his sake, and his name is justly registered amongst those who have benefited their country by peaceable pursuits.

The plant of which I am about to speak is indigenous to the Columbian world, that vast field from which such store of novelty has been poured into the more known quarters of the globe. It grows in several parts of North America, and was first sent from Virginia by Banister to Bishop Compton, in the year 1704, and Miller mentions having seen it in blossom at his garden in Fulham, in the year 1709. After which, the plant was lost for several years, till it was again obtained from America, by Mr. Catesby, about the year 1744. The latter, in his "Natural History of Carolina," gave it the name of *Meadia*, in honour of Dr. Richard Mead, an English physician of that day, whose name was revered by the eminent of all parts of Europe. On this account I feel a regret that Linnæus should have thought it necessary to change the generic term of this plant from that of *Meadia*, and more particularly so since the one he has bestowed on it seems as inappropriate, *Dodecatheon* being derived from two Greek words, which mean twelve gods; and the only cause he could have for adopting so whimsical a name was from the observation that each of these plants generally produced twelve corollas. *Meadia*, however, remains as the specific name of the plant.

This elegant plant flowers about the end of April, or the beginning of May; the stalk, after rising up to about eight inches in height, throws out an umbel of flowers, gracefully pendent. The petals are of a rosy lilac, inclining to the colour of the peach or almond blossom, and they are reflexed, or turn back over the calyx, giving the appearance of a half-expanded parasol, and which resemblance is considerably heightened by the long tapering shape of the parts of fructification and the golden colour of the anthers. The *Dodecatheon* should be planted in a shady situation, where the earth is of a loose

ON GROWING PINKS IN POTS.

BY W. IBBETT.

It is very common to see Picotees and Carnations grown in pots, but not so with the Pink, and why so universal a favourite as the latter flower should not be cultivated in a similar manner has long been to me a mystery, especially when we consider that it is as capable of such treatment, and indeed more so than its above-mentioned congeners. Florists appear to have followed the customary and more inconvenient plan of bedding them, merely because their predecessors have always adopted the practice, and without sufficient grounds. There is not one single point in connection with the Picotee which may not just as reasonably be urged in the claim of the Pink for the system of pot-culture, and the same may be said of its adaptability with the Carnation. In fact, there is more toil by far in the labour of superintending Pinks in beds than there is in growing them in pots. The buds require to be guarded and tied up, an operation performed far more effectually, and in fact neater, when under the latter rather than the former system of cultivation. It is true some have asserted that the colours do not come so true in pots as they would do in beds; but when large-sized pots are employed, I have never had a single instance where this has been the case, throughout the whole of my experience, having grown the same sort in both ways simultaneously. In pots they are comparatively free from the ravages committed by vermin, and when attended to regularly and in a proper manner, the plants have made a cleaner growth, with as much healthy "grass," in proportion, as if grown the other way. Pippings should be brought on under a hand-glass, and may then be pricked out regularly at three inches apart, in the row, and six inches between the rows, in a bed properly prepared for them. In September they should be potted in a mixture of two-thirds well-rotted turves and one-third cow-dung thoroughly decayed, and well incorporated together. Place a moderate drainage in thirty-two-sized pots, and fill up about half

full of the aforesaid compost. The plants must be taken up carefully, so as not to injure the fibres and tender rootlets; spread the latter equally, and fill up, gently pressing the soil around the roots. It is of moment to bear in mind the plants must not be sunk in the soil, but that the collar of the root must be even with the surface of it. After a gentle watering let the pots be set in a close frame for a couple of days, and they will in a short time become established. During winter they will require all the air they can have, and water but moderately; when the weather is fine let the glasses be all taken off. The plants will do well till March, if the frames are preserved in a dry and clean condition, free from any extra moisture. When this month has arrived, they may be shifted into twenty-four-sized pots, and to these a liberal supply of crocks must be given, to secure good drainage, and the compost as before. The fibres must be carefully attended to at the time of shifting, and the soil not pressed too firmly about them. They may now be placed on a dry floor, cinders, or gravel space. Allow but one or two blooming spikes, pinching off all superfluous ones, and when the buds swell out, remove all but two or three of the most promising; as the time draws near for them to burst forth, slit them down in the centre, that the petals may be free to expand evenly, and form a regular bloom; and now will be found the advantage of pot-culture, for the flowers are attended to much better all through the time of blooming. I have never seen a reason why they should not be exhibited in pots instead of, as is the usual practice, as cut blooms. When coming into flower, a little manure-water, not too strong, is a great advantage in the production of fine blooms.

ON THE TASTE FOR FLOWERS IN THE METROPOLIS.

BY VIATOR.

AFTER several years' absence from the metropolis, I had occasion often during last summer to walk through its closely populated suburbs, when my attention was attracted by the almost universal manifestation of a taste for floriculture in the windows and small plots of ground in front of the houses. The labyrinthine streets displayed the outward marks of great varieties of pecuniary endowments, and were inhabited by people of almost all the grades of middle and low life; but, with few exceptions, indications of this taste pervaded them all, and a wreath culled from the bountiful lap of nature told the passer-by that Flora and her kingdom were not forgotten. I was prepared for something like this development of a love of gardening, from having spent my early days in London, and thus being personally acquainted with the earnest yearnings of its citizens for green fields and flowers; but I am convinced, from a little attention to the subject, that the taste has more than kept pace with the increase of the population, and must be considered a stronger

characteristic of the people than it was then. As I passed from the Great Western Railway one bright summer's morning, before the natural blue of the heavens was travestied by London smoke, what a gorgeous sight presented itself in the decorated balconies of the noble and wealthy inhabitants of that aristocratic quarter! The owners were probably yet slumbering, but what beauties were silently pouring their fragrance on the morning air! Pots of the choicest greenhouse plants, wet with the dews of night, gave sure intimation of the floral tastes of those who dwelt within. Roses and Pelargoniums (Geraniums in our old vernacular) were especially abundant, as they will always be in such collections, from the facility with which they are grown. Myrtles and other evergreen shrubs mingled their dark green with the foliage of gayer tints, and Mignonette and Heliotrope, poured forth their delicious perfumes. These balconies, opening probably from drawing-rooms, were evidently little consecrated spots, where tastes and refinement kept watch from day to day, and where the purest pleasures might be enjoyed. Some, indeed, of these accessories of fashion might be the appurtenances of mere wealth, evincing the love of display of their owners; but I cannot believe this was the case with many of them. The flowers looked like loved things, and uttered silent tales in the ear of a contemplative observer. I could imagine that youth and beauty had tended them; that the sight of them had relaxed the brow of care, so often a tenant of the palace as well as of the poor man's cottage; and that sickness had been rendered less painful by their innocent beauties. Frail mementoes of our evanescent joys! Full many a lesson is conveyed by your chaste calices and petals. But although *general*, this exhibition was far from universal, and many mansions were quite guiltless of green leaves and flowers. Was it possible to avoid the conclusion that between the flower-loving and the flower-neglecting there must be some important differences both of intellect and of heart?

This decided taste in the higher classes, so publicly acknowledged, made me look more curiously for its development in the grades of social life below them, and I was pleased to find that wherever I went through the great city the same floral tendencies displayed themselves. Of that sight—worth travelling over all England to see—Covent-Garden Market in the early morning, I can only utter a passing word of recognition. It is the mighty storehouse whence all the luxuries of vegetable life are dispensed to the largest city in the world. But of this *in transitu*. Girls with baskets, and men with carts were found in all the great thoroughfares, bearing productions redolent of odours and sparkling with beauty. Bouquets of cut flowers, and plants ready to be transferred to the garden of the amateur, presented themselves in such plenty as to prove that there must be thousands of buyers who think that money may be worthily spent on flowers, as well as on other equally ephemeral luxuries. Even into the places of common business flowers had insinuated themselves. What a cheerful appearance many shops presented,

when, arranged among their wares, pots of healthy-looking plants invited attention. And although cultivation becomes more difficult as the population is denser and gardens are wanting, yet even in such localities (Fleet Street and Ludgate Hill, for instance) the upper windows are not deficient in evidences that the inhabitants love flowers. The influence of such a taste must be more marked in these crowded depôts of commerce than among the wealthy residents of the suburbs. The latter can easily find egress to the Parks and other rural spots; but a tradesman in Cornhill who cultivates a few floral favourites, must watch them and linger over them with a joy which the more favoured possessors of gardens can scarcely imagine. It is like possessing *one* object of tenderness, while others bask in the smiles of large families and many friends. The more opulent in the treasures of the heart are doubtless the happiest; but the owner of one idol worships it with an intensity the others know nothing of.

But I must come to that which most attracted me, and the bearings of which are most important. Within the last quarter of a century what immense additions have been made to the great city! Scenes of my youth! Pretty cheerful streets which twenty years ago bordered on green fields, listened to the flail, and could catch a glimpse of a distant windmill, how altered and base have you become! Improvements in the centre of the great metropolis, and the influx and increase of population, have made those remembered places crowded thoroughfares, and their inhabitants have been driven in widening eddies still farther from the centre. What were the suburbs then are now the town, and the inquirer must proceed farther for those pleasant spots, the semi-rural dwellings of the artisan and the villas of the middle classes. But if a natural repugnance was felt at seeing the arenas of former games of cricket and kite-flying turned into the very thickest marts of trade, ample restitution was afforded by the present condition of the *existing* outskirts of London. With retrogression there has certainly been improvement in almost everything, but in nothing more than in the floricultural tendencies of the population. Long streets, extending in some cases for miles in one direction, display before almost every house a plot of ground, generally laid out with neatness, and adorned with shrubs and flowers. I observed this peculiarly in winter, when, of course, none but amateurs look much after their gardens; yet, while some of the plots would have been better for a little trimming, on the whole the appearance was excellent. Hyacinths in pots and glasses adorned many of the windows, and evergreen shrubs gave a cheerful appearance to the fronts of the dwellings. Laurel of various kinds, *Arbor vite*, *Phillyrea*, *Aucuba japonica*, and *Rhododendron*, I particularly noticed as being very abundant. How obvious was the reflection that a vast amount of innocent recreation and unembittered happiness must redound to the teeming multitudes of cultivators of these graceful appendages of social life. But has the poor man no flowers, and is

his arduous lot deprived of the alleviation which the culture of plants on the smallest scale can confer? I fear these questions must generally be answered in the affirmative, in reference to the working and poorer classes of large towns. Even if a few square yards of ground are doled out to the dwelling of the poor man, there are too many low characters and "untented" and mischievous bairns to allow much of green to grow. In this respect the agricultural have a decided advantage over the manufacturing population, for in the country a cottage may have as much land attached to it as will allow twenty tenements to be built upon it in a city. But the ruling passion for natural objects will force itself into notice even in the most untoward circumstances. Fine Auriculas, Polyanthuses, and Dahlias are grown by the silk-weavers of Spitalfields, sometimes in little yards, sometimes in pots in the windows or on the tops of the houses. In what alley will not the observer discover a struggling attempt after floricultural honours? A Wallflower in a blacking-bottle, or a Carnation in a gallipot, are sure, though imperfect and humble, indications of the elementary feelings which, in better and more favoured circumstances, delight in conservatories and greenhouses. Thus, through the whole extent of London, I found an increasing love of those pursuits which have always raised men's characters and improved their feelings. It is true this taste for flowers and gardening is often exhibited in the midst of appliances very inadequate to its development, but it is beneficial notwithstanding.

VARIEGATED ORCHIDS.

PERHAPS there are no objects throughout the whole vegetable kingdom more delicately beautiful than the metallic-veined foliage of the small group of insignificant-flowered Orchids, of which *Anætochilus* may be taken as the type. Formerly one or two kinds only were known in cultivation, but now their number is so far increased that a group of them becomes an exceedingly interesting and attractive feature. Unfortunately they require a high temperature, and thus their cultivation is limited only to those who can provide them with a tropical climate. They are grown in a mixture of light fibrous peat (Shirley peat, carefully selected, is the most suitable near London) and sphagnum moss cut up very fine; three parts of sphagnum are used to one part of peat, and a few small potsherds are mixed in the moss; the pots also must be thoroughly drained. The plants should be kept up even with the top of the pots, and the soil packed about them rather lightly. They are then to be plunged in moss at the hottest part of an orchid-house or a damp stove. In winter they require very little water; but in summer, when they are growing freely, and there is a full command of heat, water may be used with freedom. The temperature in winter should be from 65° to 75°, and in summer from 70° to 90°. The plants are best covered with ample bell-glasses,

which should be wiped dry every morning; and the plants should be frequently *slightly* smoked with tobacco, to keep them free from insects.

The following are the kinds now in cultivation, with the names by which they are known in the nurseries:—*Anæctochilus setaceus*, the leaves beautifully and closely netted with lines of gold colour, on a rich velvety brownish green surface. There is a variety similar to this, with the veins a few shades lighter. *Anæctochilus xanthophyllus* (*A. setaceus pictus*), the leaves with a broad bar of gold colour down the centre, and marked on each side with netted lines of the same on a dark green ground. *Anæctochilus intermedius*, intermediate between the two preceding, having a smaller bar down the leaf, but otherwise marked with golden network on the dark velvety green surface. *Anæctochilus striatus*, this has narrow lance-shaped foliage, marked with a bar of gold through the centre, upon a dark green ground. *Anæctochilus Lowii* (*Cheirostylus marmoratus*; *Dossinia marmorata*), very robust velvety foliage, of a rich dark mottled bronzy green, marked with fine transverse lustrous golden lines. Another variety of this differs in being a few shades lighter in colour. *Anæctochilus Lobbianus* (*A. latimaculatus*), the foliage of this is of a rich green, the midrib silvery, and the rest of the surface marked with fine transverse silvery lines. *Physurus argenteus* (*A. argenteus*), the leaves green, thickly netted with silvery lines. *Physurus argenteus pictus* (*A. argenteus pictus*), green, with a wide central silvery bar, and otherwise netted with silvery lines.

The beautiful *Cissus discolor* would be a most appropriate climber for a house in which these variegated Orchids are kept, the shady and still atmosphere of such a situation being favourable to the development of the beautiful markings of its leaves; and, along with the New Holland Pitcher Plant (*Cephalotus follicularis*) and the Fly-trap (*Dionæa muscipula*), these form a most interesting group.

ON SOWING GRASS SEEDS, AND MAKING A LAWN.

BY FESTUCA.

WHERE it is possible to obtain good fresh turf, without much trouble and expense, the necessity of sowing is generally obviated, and we have a smooth and even surface of grass sooner than by seed; turf, however, is not always to be had, within a reasonable distance, of such a nature as to be fit for laying down on a lawn, and is too often infested by weeds which are tedious to remove; and in other cases, where the surface to be covered is very extensive, sowing seed is much more economical than removing turf. For sowing down grass seed, the ground should be lightly dug over during the middle of March or August, immediately after which the seed should be scattered broadcast, rather thickly, then raked and rolled well in. Where the lawn adjoins any other grass-piece, care should be exercised

to have the soil on that side somewhat higher, so that when the roller is brought over, the whole may be on one uniform level. When the young grass has come up no farther care is necessary but to keep it free from weeds, until it is strong enough to bear mowing. For sowing the seed, choose a dry day, in a showery season, when there is a chance of a beneficial shower after the raking and rolling in has been performed. To make a perfectly smooth even lawn, it is requisite to have recourse to a line, for after the growth of the grass it will be a difficult and unsatisfactory business to attempt to level it; on the ground being dug, levelled, and evenly raked in the first instance depend the smoothness and beauty of the lawn. The most suitable seeds for lawn grasses are *Festuca ovina*, *Avena flavescens*, *Cynosaurus cristatus*, *Poa pratensis*, *Poa trivialis*, *Trifolium minus*, and White Dutch Clover. Some prefer a mixture comprising other and stronger-growing varieties; but the smaller the proportion of the vigorous kinds, the finer and softer will be the turf, and the less mowing will be requisite. All the species of rye-grass are very objectionable, although too frequently introduced, on account of the rapid growth of that class of grass.

NOTES ON NEW AND SELECT PLANTS.

179. *PELARGONIUM ENDLICHERIANUM*. Nat. Ord. *Geraniaceæ*.—A distinct and pretty species, introduced from the Western Taurus to the Botanic Gardens at Copenhagen, from whence seeds were forwarded to the Royal Botanic Gardens at Kew. It first produced its blossoms in July of the present year, in a cool greenhouse. It was until lately supposed that the genus *Pelargonium* was exclusively to be found in the colony of the Cape of Good Hope, but a few have of late years been introduced from South Australia, and the present species from the Caucasus. The plant, which is herbaceous, grows about eighteen inches high. The flowers are produced in an umbel, of about ten to twelve blooms in each, of a deep rose. The upper two of the five petals are rather large (being more than an inch in length); the three lower petals are extremely small, being less than the sepals. (*Bot. Mag.*, 4946)

180. *MORICANDIA RAMBURII*. Nat. Ord. *Cruciferae*. Syn. *Brassica moricandioides*.—A hardy perennial, discovered by Messrs. Webb, Rambur, and Boissier, at an elevation of near three thousand feet, on the mountains of Granada, growing mostly in the clefts of the rocks. It attains near two feet in height; flowers purple, produced in terminal racemes on the branches, somewhat resembling a Wallflower in form and size. The leaves are large, of a glaucous green. (*Bot. Mag.*, 4947.)

181. *GALIPEA MACROPHYLLA*. Nat. Ord. *Rutaceæ*. Syn. *Conchocarpus macrophyllus*.—Mr. Makoy forwarded this plant to the Royal Botanic Gardens at Kew. It is a native of Brazil, and consequently

requires the temperature of our stoves; it does not grow to much more than a foot in height, and the flowers are not of a very showy character; they are borne in a spike or raceme, of near six inches in length, two or three together, each blossom about an inch across; the petals, which are five in number, are narrow, of a pale rose or blush. Leaves large, ten to twelve inches long and four broad, elliptic-oblong. (*Bot. Mag.*, 4948.)

182. *AGAVE STRIATA*. Nat. Ord. *Amaryllidææ*.—A Mexican Agave, sent from Real del Monte to the Kew Botanic Gardens. This species is closely allied to *A. geminiflora*, but differs slightly in the foliage. It is almost a stemless plant, with very numerous, narrow, thick, rigid leaves, two to two and a half feet in length, terminating with a strong horny point, which is very pungent. The scape or flower-stem rises from the centre of the leaves, to the height of four to six feet, and of proportionate thickness. The florescent spike is about three feet long, densely covered with flowers, which are small, of a dull greenish sulphur. The filaments are long, the anthers large, of a dark purple. (*Bot. Mag.*, 4950.)

183. *PACHYPHYTUM BRACTEOSUM*. Nat. Ord. *Crassulacææ*.—A new genus, allied to the *Echeveria*, of which the present is the only species. Sir William Hooker remarks that it is "distinct both in habit and in the structure of the flowers, and very remarkable in the curved, secund, bracteated spikes of flowers; in the large campanulate calyx, much exceeding the corolla in length; in the two spurs at the base of the leaves of the peduncle and of the bractæas; and in the two scales or ears at the base of the lamina of the petals. There is a most striking contrast between the colour of the petals (scarlet) and the pale glaucous hue of the large calyx and bracts, and all the rest of the plant; the flowers are more readily brought into view by the curvature of the spikes. The plant only requires the protection of a temperate greenhouse. It flowers in the summer months, and the spike becomes erect after flowering." It is a native of Mexico.

184. *GALEOTTIA FIMBRIATA*. Nat. Ord. *Orchidææ*.—M. Warzewitz discovered this species on the Quindos and at the sources of the Marañon, and M. Wagener in the woods of Ocaña, at an elevation of near five thousand feet above the level of the sea. A specimen of this plant lately flowered in the stove of Henry B. Kerr, Esq., of Cheshunt, who imported it from South America. In habit it resembles a stemless *Maxillaria*. The flowers are a pale brownish yellow, striped or streaked with crimson; the sepals and petals are about four inches across from tip to tip; they grow in a raceme of two or three together. The foliage is about six inches long, and from one to two inches in breadth, tapering at the base. Pseudo bulbs oval, two-leaved. (*Gard. Chron.*, 183.)

185. *CALCEOLARIA ERICOIDES*. Nat. Ord. *Scrophularinææ*.—Mr. Hartweg collected seeds and dried specimens of this species in Colombia, which he forwarded to the Horticultural Society. Dr. Jameson, of Quito, also collected seeds, from which Mr. Anderson, of

Edinburgh, raised plants. The specimens discovered were growing at 12,000 feet elevation. When in its natural habitat it appears to have formed a very handsome object, and is highly spoken of by its discoverers; so far, however, it seems to be in cultivation of a rather straggling habit, which is perhaps to be partly attributed to improper treatment. From the dried specimens it appears to be a stiff, erect, woody shrub, and, when the wood is ripe, resembling *Erica odora rosea*. The plant is covered with a short coarse down. The flowers are produced in a dense naked panicle, of nine inches in length; they are of a peculiar form, the corolla being narrow, folded upon itself by a bend near the middle, clear yellow; leaves linear, the edges rolled back until they meet. (*Hort. Soc. Journ.*)

186. *PINUS GRENVILLEÆ*. Nat. Ord. *Coniferae*.—A noble Conifer, discovered by Mr. Hartweg on some of the highest mountains near Tepic, in Mexico. It is of robust habit, and has in consequence been called "Ocote macho," or male Pine, by the natives. The foliage is very robust, from twelve to fifteen inches in length; leaves are in fives. The cones are solitary, pendulous, straight, sixteen inches long, and three to four inches across the base. This species is easily distinguishable, from its straight cones and robust foliage. In its native habitat it attains to the height of seventy to eighty feet. It has been named in honour of the Right Honourable Lady Grenville. (*Hort. Soc. Journ.*)

187. *PINUS GORDONIANA*. Nat. Ord. *Coniferae*.—A companion to the last-named species, introduced by the same gentleman, from the same locality. It is a remarkably handsome species, possessing the longest foliage of any of the tribe yet brought to this country. It attains about the same height as its predecessor. It is called "Ocote hembra" or female Pine, by the natives. The leaves are produced in fives, are sixteen inches in length, not so robust as in *P. Grenvilleæ*, and of a light green. The cones are pendulous, generally solitary, from four to five inches in length, and one inch and a half at the base; they are slightly curved, and regularly tapering. It is named in compliment to Mr. Gordon, of the Horticultural Society's Garden. It is quite hardy, and is a splendid species, the long slender foliage rendering it an attractive object. (*Hort. Soc. Journ.*)

188. *LÆLIA PURPURATA*. Nat. Ord. *Orchideæ*.—This is the finest species of the genus, and remarkable for the richness of its colouring. The petals and sepals are white, tinged with pale rose, extending to a length of nine inches. The labellum is golden orange, in the interior striped with purple lines, and the limb bright violet, shading into rose, marked with crimson veins. In the proportions of its flowers this species rivals *Cattleya Mossiæ*. The flowers are united from three to five on the same stalk. It was discovered in 1846, by M. F. De Vos, in the Isle of St. Catherine, on the south coast of Brazil. This collector, in the service of M. Verschaffelt, introduced the plant in a living state to the gardens of his patron, who has lately

sent it out. This magnificent species should be possessed by every grower of this tribe of plants. (*Flor. des Serres*, 1138.)

189. *DIRCÆA BLASSII*. Nat. Ord. *Gesneriaceæ*.—This very beautiful plant ranks amongst the foremost of the tribe of Gesnerias. It is a native of Brazil, and named in honour of M. Blas, of Elberfeld. It is remarkable for its pendulous habit and abundant bloom; with this exception, nearly all the *Dircæas* are of erect growth. A specimen of *D. Blassii*, which flowered in the establishment of M. Van Houtte, produced five branches, each more than seven feet in length, from which proceeded about one hundred and fifty flowering branches; the plant being ornamented with at least two thousand blossoms! The flowers resemble those of a *Gesneria*, with an elongated upper lip, and are of a bright orange-scarlet; in length they are about three inches. They are borne in whorls around the pendent branches, of which there are several on each branch. Upwards of twenty of these vivid blossoms are produced in each whorl. This promises to be one of the most attractive plants which has been introduced for many years, and will no doubt be a universal favourite, succeeding well in a warm greenhouse; in other respects it requires similar treatment to the *Gesneria*. (*Flor des Serres*, 1140-42.)

190. *SWAMMERDAMIA ANTENNARIA*. Nat. Ord. *Compositæ*.—This is a small, compact, evergreen bush, not at present more than three feet high. It has angular viscid shoots, and a foliage the colour of *Euonymus Japonicus*. The leaves are, at the largest, not more than an inch long, and generally smaller, obovate, apiculate, or perfectly blunt, veinless, concave, with a little mealiness on the under side when young. The flower-heads are small, white, and collected in little lateral corymbose panicles. It is found wild in Van Diemen's Land, on the sides of Mount Wellington, where it flowers in the months of January, February, and March. The late Professor De Candolle gave it its name, in allusion to the form of the pappus, which he thought resembled the antennæ of an insect—a very obscure peculiarity. A hardy, evergreen, small shrub, growing freely in any common garden soil, and easily increased by cuttings in the usual way. Its clusters of small flowers open here in June, but add little to its beauty, which is confined to the foliage. (*Hort. Soc. Journ.*)

191. *LACHENALIA AUREA*. Nat. Ord. *Asphodelææ*.—The Horticultural Society purchased this beautiful species of a collector, who discovered it in Natal. It first bloomed in the greenhouse at Chiswick last spring. It is remarkable for the length of time it remains in flower, a much longer period than any other of this much-neglected genus; although the *Lachenalia* is of as easy a culture as the *Hyacinth* and other spring bulbs, we very seldom meet with them in the greenhouse. The numerous broad flaccid leaves, which are a lively green, slightly mottled with purple, fall back upon the ground, and the scapes, which are of the same mottled colours, rise erect to the height of near two feet, profusely laden with its brilliant golden yellow tubular flowers. The individual blooms are much larger than

those of *L. tricolor* (the most common species), and are of a firm waxy substance. This species deserves to be in every greenhouse. (*Gard. Chron.* 176.)

192. *SONERALIA ORBICULATA*. Nat. Ord. *Melastomaceæ*.—Dr. Royle forwarded this species to the Horticultural Society's Gardens, in 1852, from the Neilgherry Hills, India. It forms a neat little bush, of about a foot in height, blooming in the stove in the winter months very freely. The flowers are borne in a slender peduncle, about three inches long, and of a bright rose colour. It is a handsome stove perennial, requiring similar treatment to the *Achimenes* tribe. (*Hort. Soc. Journ.*)

193. *CALBOA GLOBOSA*. Nat. Ord. *Convolvulaceæ*.—Raised from seeds received from Mr. Hartweg, in January, 1846, said to have been collected on the eastern declivity of Orizaba, in Mexico. A strong half-wooded climber; leaves dull green, on long stalks, extremely variable in form. The flowers grow in naked umbels, on a peduncle nine or ten inches long; the pedicels are from one inch and a half to four inches long. The corolla is two inches and a half long, deep rich red, with a curved cylindrical tube, and a campanulate erect limb, divided into five erect, rounded, wavy lobes. The stamens are longer than the corolla. A rambling perennial, growing in any good rich soil composed of loam and sandy peat. It is easily increased by cuttings of the young shoots, and requires to be kept rather dry in a cool part of the stove during the winter, but should be kept in a cool airy part of the greenhouse during the summer, where it will flower from August to October. Although undoubtedly a fine species, it is only fit for growing where there is plenty of room for its tops to spread. It will not flower in a pot, and must therefore be planted in the open ground. (*Hort. Soc. Journ.*)

194. *PENTABAPHIA CUBENSIS*. Nat. Ord. *Gesneriaceæ*.—A very neat and pretty little plant, forming a dwarf shrub, and requiring a temperature between the greenhouse and stove. It is a native of Cuba, where it was discovered by M. Linden. A plant was presented to the Horticultural Society in the spring of 1849. A shrub, with a compact habit, and dark green, convex, evergreen leaves, obovate, crenated near the point. The flowers grow singly in the axils of the leaves, on cinnamon-brown stalks an inch long. The corolla is about the same length, tubular, curved, and rich scarlet, with a projecting style. The calyx consists of five straight, narrow, sharp lobes, not unlike five brown needles, whence the generic name has arisen. It is easily increased by cuttings treated in the usual way, and grows freely in a mixture of loam, peat, and leaf-mould. It remains in bloom for a considerable time. (*Hort. Soc. Journ.*)

195. *DODECATHÉON INTEGRIFOLIUM*. Nat. Ord. *Primulaceæ*.—Raised by the Horticultural Society, from seed sent by Mr. Hartweg from California. It is a dwarf and stemless plant, with few, narrow, spathulate leaves, and bearing a single nodding flower upon a slender scape. It is almost the same in colour as the old *D. Media*, purple,

with a yellow centre, and dark purple anthers. It appears, however, to flower more freely in its native habitat, producing as many as ten or twelve flowers on a scape. (*Hort. Soc. Journ.*)

196. *GASTRONEMA SANGUINEUM*. Nat. Ord. *Amaryllidaceæ*.—A very handsome greenhouse bulb, introduced by Messrs. Backhouse, of York, in 1845, from Caffraria. A hollow glaucous stem, four or five inches high, supports a single sessile flower of its own length, surrounded at the base by a pair of long narrow spathes. The tube is slender and greenish, and expands into a deep rose obconical throat, having six crimson lines running from the sinuses of the limb on the outside, and on the inside as many white bands, each with a crimson streak along the middle. The limb is very deep rose colour, with six equal-spreading, oblong, whole-coloured segments. The leaves are nearly as tall as the flower, dark green. (*Cot. Gard.*)

QUESTIONS, ANSWERS, AND REMARKS.

CYCLAMEN ATKINSII.—*One of the Inexperienced* wishes to know how this plant is to be grown? [A cool frame or greenhouse will suit it, a mixture of peat soil, sandy loam, and decomposed leaves is a good compost.—*Ed.*]

HARDY AROIDÆ.—Favour an old subscriber by the names of a few select plants of this class, such as may be procured at no great expense being of course preferred.—*B. B.* [The following list may be useful to you, if you wish to cultivate these curious things. All the species here enumerated are procurable; but several are more likely to be had in South of Europe gardens than in our own:—*Arum maculatum*, italicum, variegatum, corsicum, *Draunculus*, crinitum, *Dracontium*, triphyllum, *zebrinum*, *virginicum*, *Arisarum*, *proboscideum*, *tenuifolium*; *Calla palustris*, *æthiopica*; *Pothos fætida*; *Ambrosinia Bassi*, *reticulata*, *maculata*; *Rohdea japonica*; *Houttuynia cordifolia*.—*Ed.*]

SAFFRON CROCUS.—Can you or any of your correspondents tell me where to obtain and how to cultivate the real Saffron Crocus, still grown, I believe, in France, and within my memory in England, for the purpose of producing the saffron of commerce? An early answer in the *Cabinet* will much oblige its unfailing reader for more than twenty years.—*Commeliver*. [If our respected correspondent will forward name and address, we believe we can put him in the way of procuring the true Saffron Crocus.—*Ed.*]

CHAMÆROPS HUMILIS.—How am I to succeed with this plant out of doors?—*Triticum*. [This plant, commonly known as the Dwarf Fan Palm, is the hardest of the tribe, and may be seen out of doors at Kew and other establishments. It will succeed if planted on a lawn, but requires a little protection from frost. It grows well in rich mould, well drained, and occasionally watered. Dig a pit three feet deep, at the bottom place a layer of pebbles to the depth of six or eight inches, to ensure drainage, and fill up with a rich sandy loam; it will flourish under such circumstances if protected with a mat or rush screen in frosty weather.—*Ed.*]

GREENHOUSE CLIMBERS.—Having just put up a small greenhouse with a south-west aspect, I shall feel obliged to you, Mr. Editor, or to any of your numerous correspondents for the names of a few select climbers, together with any remarks that may be thought serviceable in their treatment.—*A New Subscriber*. [Perhaps the following will answer your purpose: *Bigonia cherere*, orange-red; *B. jasminoides*, white and purple; *Mandevilla suaveolens*, white; *Passiflora Colvilli*, purple; *Tacsonia pinnatistipula*, rose colour. They will require large pots, and the three last named, after the plants have occupied their space, may be pruned in each winter, and keep them somewhat dry at that period. Good loam with an admixture of heath soil will suit them well, and good drainage is essential.—*Ed.*]

DESTRUCTION OF FANSIES BY MILDEW.—I have experienced considerable annoyance

by losing several of my best kinds, from a kind of white mildew with which they have been affected, which spoils the bloom and ultimately kills the plant. I am inclined to think it is an epidemic disease, as several of my neighbours' plants have suffered from the same cause.—*Arno*. [Dusting the plants overhead, and the under side of the foliage too, with common sulphur is a perfect remedy. In old stiff soil and confined damp situations the plants are liable to be affected with mildew. Each new plantation should be put in a fresh, well-enriched, loamy soil (if yellowish, the better), on an open substratum. If a new plantation is made from the offsets of diseased plants, they should be well dusted with the sulphur, and planted in the manner above stated. If there should be appearance of an attack of mildew, the earliest attention to destroy it should be given, or it will rapidly spread.—*Ed.*]

SMALL GREENHOUSE.—I am about to fix up a small greenhouse, which I purpose heating by means of a flue and coal fire; now I shall be glad if you or any of the subscribers to this work will inform me if I may fix the fire-place at the inside of the house, without its being detrimental to the growth and health of the plants. I wish to adopt this plan in order to gain as much heat as possible, at a small expense, as also to place the fire out of reach of children; for I must inform you I shall have to fix up my house in a large yard where children can enter at times.—*Alfred Adin, a Subscriber of two years.*

THORNS.—Should any of your readers desire to form a select collection of the most ornamental *Cratægi* I beg to hand the annexed list, which will be found to contain none but handsome kinds, having proved and grown the whole of them in my shrubbery; they are planted in the same order in which they stand in the list. 1, *Cratægus heterophylla*, fruit small, red, in great abundance; 2, *C. Aronia*, fruit yellow, very large size, late in autumn; 3, *C. Douglassii*, fruit black, rather large, a very early sort; 4, *C. oxycanthus rosea superba*, the handsomest of all when in bloom, flowers deep crimson, fruit small red; 5, *C. coccinea*, the large-fruited scarlet variety; 6, *C. odoratissima*, sweet-scented, very large, pale red fruit; 7, *C. punctata flava*, the large yellow fruited; 8, *C. Lecana*, the tansy-leaved thorn, fruit large, pale red; 9, *C. macracantha*, the very long-spined thorn, fruit extremely small, brilliant scarlet, in great profusion; 10, *C. Oliveriana*, fruit small, black, very profuse, but late; 11, *C. prunifolia*, the entire-leaved thorn, fruit bright red, very late; 12, *C. oxycantha*, new, scarlet, a handsome double kind, a variety of No. 4.—*A Country Rector.*

CYPRIPEDIUM CALCEOLUS.—This, which is stated to be a British plant, on good authority, I have never been able to meet with. If any reader of your widely diffused *Cabinet* will inform me of a locality where it may be met with I shall feel much indebted, as I fear, it has ere this become extinct as a native wild plant. Ray records it as growing in the woods of Lancashire, and in woods near Ingleborough, in Yorkshire; whilst Hudson, Curtis, and Withering name other localities of a similar character in the county of York. In Withering's time, however, Ray's Yorkshire locality was searched in vain for the Lady's Slipper, "a gardener of Ingleton," as we are told, "having eradicated every plant, for sale." This practice of entirely eradicating, from the few spots where they are found, the rare plants of the flora, for any purpose, and especially for mere gain, whether followed in Withering's day or in our own, deserves to be strongly reprobated.—*T. P., Sheffield.*

ON FORCING THE ROSE, ETC.—Perhaps you will allow an old correspondent to offer a few remarks on this subject, which, by the inquiries made from time to time, I think may not be unacceptable, more especially when I say that my plan has exceeded my own most sanguine anticipations. Towards the end of August I pot the *Roses*, prune them back to two or three eyes, then plunge them in rotten tan, using a common cucumber frame, with a strong lining of hot dung, and put on the lights directly, covering them with mats, and thus let them remain till the buds have all broken, which will be in about a fortnight, when I take off the mats gradually and let them have the benefit of the light, so as to bring them to their colour in a day or two. I afterwards put them in a plant-stove at the coolest end, where the temperature ranges from seventy-five degrees to eighty degrees, where they remain for about a week, when I remove them to a warmer part of the house, and keep them moderately moist at the roots, with an occasional watering overhead by means of the syringe. As to the time for placing them

in the frame, this can only be regulated by the time they are desired to be in bloom, which gives six or seven weeks from the time of putting them in the frame. I have forced them so as to have them in bloom by Christmas, but in that case the flowers are not so fine as when they come in bloom in February and March; in fact, during the latter period I have had them in flower as perfect and fully equalling such as could be grown out of doors at an advanced season. Moss and Provence Roses force remarkably well, requiring but a little more syringing than the others; those which I generally force are the following good old sorts, which have always answered my purpose well:—Moss Crimson, Crimson Perpetual, Lee's Perpetual, Provence, Indica ochroleuca, Smith's Yellow Noisette, Rose du Roi, and others. Besides the above Roses, I force by the same means Persian Lilacs, Hydrangeas, and Rhododendrons. The Lilacs should be taken up as soon as the leaves are off, and repotted in rather large-sized pots, using sandy loam; place them in a convenient corner till January, and then begin to force. The same treatment suits the Hydrangea. The Rhododendrons should be taken up carefully with good balls, disturbing the roots as little as possible, and the best time for this is early in November. Bring them into the forcing-house immediately after Christmas; they must have free syringing and watering, when they will begin to push directly, and will have fine heads of bloom in due time.

MIGNONETTE, from which bees are excluded, and the production of seed thereby prevented, blooms much more freely, for a much longer period, and with a more continuous odour, than when bees have access to it.—*C.*

CALOCHORTUS VENUSTUS AND *C. SPLENDENS*.—These are Californian bulbs with very handsome flowers, not much cultivated, principally, I believe, because their management is considered difficult. I have grown them, however, in very sandy soil, covered with litter in frosty weather, instead of taking up the bulbs when bloom is over. They have flowered well with me in August and September, and have occasionally produced seed.—*F. G., Hampshire.*

AMARYLLIS VITTATA.—This showy plant I have this season flowered in great perfection, by shifting it as soon as it began to grow, in the month of January, from a thirty-two to a twelve sized pot, without disturbing the ball; and with soil composed of equal portions of perfectly rotten dung, leaf-mould, river-sand, and light loamy soil, mixed together. I watered sparingly till it began to grow, and afterwards plentifully. One of my plants produced two scapes nearly three feet high, each bearing five large flowers, which, when expanded, were ten inches in diameter.—*C. P. S.*

ON RAISING RHODODENDRONS FROM SEED.—Rhododendrons are a splendid class of evergreens, the majority very hardy, and admirably adapted for planting in shady situations. The seed is very minute; it should be sown in February, and placed in a hotbed. The plants are up in April; they are then kept moist and warm, and shaded from bright sunlight; when two inches high, they are thinned, and again subjected to the same close warm treatment, allowing them to gradually dry off and harden, before winter. The same mode is adopted the following spring, and by this means, in two years, plants are obtained from eight to twelve inches high.

WATSONIA FULGIDA.—This most beautiful ever-growing, bulbous-rooted plant thrives well in rich, light, sandy loam. It is very hardy and robust in its nature, and throws up spikes of the most beautiful bright orange-scarlet flowers from the month of May to the month of September. It is extremely showy, and well adapted to border culture. There are other varieties of this genus, all equally hardy and very beautiful in their particular styles of growth and the colours of their blossoms, but this species is the queen of the genus, and no flower garden should be without it.—*B. S., Jersey.*

BALCONY GARDEN.—The plants which should be made choice of as most suitable for the decoration of balconies ought to be those that do not attain a very large growth, and are tolerably hardy, as, from the exposed situations of windows, etc., they will be very liable to sudden changes of temperature, draught, winds, etc. It is a very good plan, to prevent the sudden drying of the soil in which the plant is potted, to place the pot within one or two sizes larger, and fill up the space between with moss, which should always be kept moist; the plants will then preserve a healthy appearance and will flourish much better. Feeders or garden saucers may be used if preferred, but they are not recommended, as they obstruct the drainage, and render the water standing in

CULTURE OF GRAMMANTHES CHLOREFLORA.—This is properly a greenhouse annual, and, as a pot plant, makes an admirable companion for the *Mesembryanthemum pyro-pæum*, with which it might also be associated in the open air, on dry sunny rockwork, during summer. Like that species, however, the flowers require sunshine to cause them to develop their beauty, but exposed to the sun, a tuft of the plants, when in a flowering condition, forms a mass of yellowish copper-coloured stars of remarkable brilliancy. I can hardly imagine a more beautiful little thing for a sunny window. The seeds should be sown early in March, along with those of other half-hardy annuals, in pots, placed either in a greenhouse or in a window, or in a frame with a very mild bottom heat, or in a pit, or, in fact, in any place where they will be subjected to a temperate climate. After germination, and when they have formed a pair or two of small leaves, they should be pricked out in three-inch or five-inch pots, as may be convenient, the plants being placed about an inch apart. They should then be placed in a rather close frame, either with or without very slight warmth—the difference being that in one case they will grow faster than in the other; when they are well established, they may be removed to the greenhouse stages, or planted out as already suggested. If grown in a window, they must be shaded and kept covered by a glass, or some other contrivance until established. A light sandy soil seems to suit them well; I have used a mixture of leaf-mould with small proportions of loam and sand, and find them grow freely; though it is probable that if the young plants had been stopped before they came into flower, they would have had individually a more bushy habit. Sown in March, they come into flower by the end of May, and continue a couple of months in bloom. Seeds sown about June will produce plants to bloom throughout the autumn. Being small, and bearing a persistent somewhat deceptive leaf-like calyx, it will be necessary, in order to its perpetuation, to examine the plants closely, so as to gather, as they reach maturity, such of the follicular capsules as produce perfect seeds.—*W. Green, Exmouth.*

THE PALMYRA PALM.—We have lying before us a small work, of 92 pages, entitled “Description of the Palmyra Palm,” by W. Ferguson, Esq., printed in Ceylon, and illustrated by several woodcuts, the drawing and engraving of which have been executed by native artists. It is remarkable as the first illustrated work published in Ceylon, and is indeed very creditable to those who have produced it. The author gives a most interesting account of the Palm, and its uses and products, correcting many popular errors, and embodying a great mass of valuable miscellaneous information, collected from original sources during a ten years’ residence in the island. We venture to call it the best account of the Palmyra which has been published. It is, we understand, Mr. Ferguson’s intention, on his return to Ceylon, to publish similar descriptions of the other

familiar plants of that island; and we hope he may meet with sufficient encouragement to induce him to do so. We have little space for extract, but must quote the following brief notice of a many-headed Palmyra:—"The Dragon tree of Teneriffe divides into several branches, and the Doum Palm of Upper Egypt (*Hyphane coriacea*) is dichotomous, or divided into regular pairs of branches, but the departure of our Indian species from their normal state is very rare indeed; however, the phenomenon of a several-headed Palmyra is sometimes met with. The first one the writer saw was some years ago, on Mr. Hardy's estate at Jaffna. It was a male tree, having then four heads upon it, with marks where three or four others had been. These divisions began about twenty-five or thirty feet from the ground. Other specimens are found in the peninsula, on the island of Delft, and on the smaller islands near Jaffna, and the writer saw one near Oodoville with six heads on it. One of these grew nearly in a line with the body of the tree, while the other five grew out from the side of this one, all from the same centre, but bending somewhat outwards before they could attain their upright position. There are marks where three others had been. The tree mentioned by Mr. Forbes, in his "Oriental Memoirs," as having forty heads was probably a Palmyra."

MIRTUS TOMENTOSUS.—Although this is an old plant, it is a rare occurrence to see it properly cultivated, and producing its very pretty rose-coloured flowers in such profusion as it will do under proper management. It is a very handsome stove shrub, flowering early in the season, and continuing for some time in perfection. It is readily propagated by cuttings of the young wood, under a bell-glass on a gentle bottom heat, and it strikes the best when the young wood is about half ripe; make choice of the short stubby pieces, and take them off with a heel, that is, with a portion of the parent branch adhering to the base of the cutting. When they are rooted, which will generally be in about six weeks or two months, pot off singly, and nurse in a warm frame until thoroughly established. Afterwards harden the plants off, and grow them in the stove. Of course, if good plants are desired, the young ones must be stopped to make them bushy, and they must be grown very vigorously. A mixture of loam, leaf-mould, and peat, with plenty of sand, will be found very suitable to pot them in. Water liberally, and occasionally in the growing season with liquid manure, but recollect the blooming of this, as well as of all other hard-wooded plants, depends upon the wood being properly matured in the autumn; therefore attend to it in time.—*A. B. C.*

SALVIA SPLENDENS FOR WINTER BLOOMING.—As soon as there is the least appearance of bloom in August, I take off cuttings from the strongest shoots, just below the third joint, insert them singly in small sixty-sized pots, and plunge them in a brisk bottom heat under a handglass, in a compost of leaf-mould, sand, and dung in equal proportions, taking particular care that they do not droop. When well rooted, shift them into the next-sized pot, and continue to shift them until finally established in forty-eight-sized pots. This fine plant is a great acquisition to the conservatory, especially in the dull months of November, December, and January.—*W. Taylor, Camberwell.*

TO DESTROY MICE.—Fry a sheet of brown paper in any grease, the coarser the paper is the better. This the mice will eat, and it will destroy them. This is safer, cheaper, and easier than any trap.—*Sener.*

THE BIRCH TREE.—The utility of the bark of this tree in North America is very remarkable. Not only are the canoes in which the Indians trust themselves, on lakes exceedingly boisterous, some miles from the shore, made of it, but also all sorts of small cups and dishes. Besides, it burns like pitch, splits into threads, which serve for twine, and the filmy parts, near the outside may be written upon with pencil, being no bad substitute for paper.—*Head's Forest Scenes.*

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CHRONOLOGICAL NOTES FOR THE YEAR 1866.

Golden Number	14	Dominical Letters	F E
Epoct	23	Roman Indiction	14
Solar Cycle	17	Julian Period	6589

ECLIPSES.

During this year there will be four Eclipses, viz.—
 April 5th.—*A Total Eclipse of the Sun*, invisible here. Begins at 8h. 41m. 54s. a.m., in long. 44° 39' E., and lat. 58° 51' S. Central Eclipse at noon, in long. 101° 25' E., and lat. 67° 53' S.; ending at 7h. 3m. 48s. a.m., in lat. 2° 12' N., and long. 146° 17' E. Visible in Australia, New Zealand, Java, Borneo, etc.

April 20th.—*A Partial Eclipse of the Moon*, invisible here. First contact with earth's shadow, 7h. 31m. 6s. a.m.; eclipsic opposition and middle of Eclipse at 9h. 13m. 36s. a.m.; last contact with shadow, 10h. 38m. 41s. a.m. Magnitude of Eclipse (Moon's diameter being 1) 0.708. Visible to America, the West Indies, Panama, Sandwich Islands, etc.

Sept. 29th.—*An Annular Eclipse of the Sun*, also invisible at Greenwich. Ecliptic conjunction at 3h. 47m. 42s. a.m. This Eclipse will be visible in the Northern regions, throughout Siberia and the North of Russia, Nova Zembla, Spitzbergen, and Behring's Straits.

Oct. 13th.—*A Partial Eclipse of the Moon*, visible in this country. First contact with earth's shadow, 9h. 21m. 6s. p.m.; eclipsic opposition at 10h. 50m. p.m.; last contact at 12h. 27m. 5s. p.m.; Eclipse central in long. 12° E. The Moon will south at Greenwich shortly after the middle of the Eclipse, which will be visible to nearly the whole of Europe. Magnitude of the Eclipse, .994 (nearly total).

THE FOUR QUARTERS OF THE YEAR.

Spring Quarter begins	March 20,	9h. 50m. a.m.
Summer	" "	June 21, 6h. 37m. a.m.
Autumn	" "	Sept. 22, 8h. 53m. p.m.
Winter	" "	Dec. 21, 2h. 39m. p.m.

Fixed & Moveable Festivals, Anniversaries, &c.

Epiphany	Jan. 6
Septuagesima Sunday	" 20
Martyrdom of King Charles I.	" 30
Quinquagesima—Shrove Sunday	Feb. 3
Ash Wednesday	" 6
Quadragesima—First Sunday in Lent	" 10
St. David	March 1
Palm Sunday	" 16
St. Patrick	" 17
Good Friday	" 21
EASTER SUNDAY	" 23
Annunciation—Lady Day	" 25
Low Sunday	" 30
St. George	April 23
Rogation Sunday	" 27
Ascension Day—Holy Thursday	May 1
Pentecost—Whit Sunday	" 11
Trinity Sunday	" 18
Corpus Christi	" 22
Birth of Queen Victoria	" 24
Restoration of King Charles II.	" 29
Accession of Queen Victoria	June 20
Proc. union	" 21
St. Joan the Baptist—Midsummer Day	" 24
Birth of Prince Albert	Aug. 26
St. Michael—Michaelmas Day	Sept. 29
Gunnpowder Plot	Nov. 5
Birth of Prince of Wales	" 9
First Sunday in Advent—St. Andrew	" 30
St. Thomas	Dec. 21
Christmas Day	" 25

LAW TERMS, 1866.

Hilary	Begins Jan. 11	Ends Jan. 31
Easter	" April 15	" May 6
Trinity	" May 22	" June 12
Michaelmas	" Nov. 2	" Nov. 25

UNIVERSITY TERMS, 1866.

OXFORD.

Lent	Begins Jan. 14	Ends March 15
Easter	" April 2	" May 10
Trinity	" May 14	" July 5
Michaelmas	" Oct. 10	" Dec. 17
The Act, July 1.		

CAMBRIDGE.

Lent	Begins Jan. 13	Ends March 14
Easter	" April 2	" July 4
Michaelmas	" Oct. 10	" Dec. 16
The Commencement, July 1.		

ROYAL FAMILY OF GREAT BRITAIN.

May 24, 1819..Queen Victoria	37
Aug. 26, 1819..Prince Albert	37
Nov. 21, 1840..Princess Royal	16
Nov. 9, 1841..Princes of Wales	15
April 25, 1843..Princesses Alfred Maud Mary	13
Aug. 6, 1844..Prince Alfred Ernest Albert	12
May 25, 1846..Princesses Helena Augusta Victoria	10
Mar. 18, 1848..Princess Louisa Caroline Alberta	8
May 1, 1850..Prince Arthur Patrick Albert	6
April 7, 1853..Prince Leopold George Albert	3
May 27, 1819..Geo. Fred. King of Hanover	37
Mar. 26, 1819..Geo. Wm. Fred. Ch. Dk. of Cambridge	37
July 19, 1822..Grand Duchess of Mecklenburgh	34
Nov. 27, 1833..Princess Mary of Cambridge	23
April 25, 1776..Princess Mary, Duchess of Gloucester	50
Aug. 17, 1786..Victoria Duchess of Kent	70
July 26, 1797..Augusta, Duchess of Cambridge	50

HOLIDAYS KEPT AT PUBLIC OFFICES.

Stamp Office.	Bank of England.
March 21—Good Friday	March 21—Good Friday
May 24—Queen's Birthday	Dec. 25—Christmas Day
— 29—Restoration of King Charles II.	And in the Transfer Offices
June 24—Coronation	May 1 & Nov. 1 in addition
Dec. 25—Christmas Day	Custom House and Excise Office.
India House, Transfer Office and Exchequer Office	March 21—Good Friday
March 21—Good Friday	May 24—Queen's Birthday
Dec. 25—Christmas Day	June 24—Coronation
	Dec. 25—Christmas Day

TRANSFER DAYS, DIVIDENDS DUE, &c.

	Divds. due.	Transfer Days.
BANK STOCK	Ap. 5, Oct. 19	
3 per Cent. Consols	Jan. 5, July 5	
3 per Cent. Reduced	Ap. 5, Oct. 10	Tuesday,
3 per Cent. 1726	Jan. 5, July 5	& Wed. Thurs.
New 3 per Cents.	Ap. 5, Oct. 10	& Friday.
New 5 per Ct. Annuities	Jan. 5, July 5	
Long Annuities	Ap. 5, Oct. 10	
EAST INDIA STOCK	Jan. 6, July 6, Tu. Th. & Sat.	
Interest on Indian Bonds	Ap. 1, Oct. 1.	
Life Annuities transferred between Jan. 5		
& April 4, or between July 5 and Oct. 9	Jan. 6, July 6	
between April 6		
& July 4, or between Oct. 10 and Jan. 4	Ap. 5, Oct. 10	
These Dividends are payable three days later than the above dates.		

January.

MOON'S QUARTERS.

7—New Moon 8h. 17m. P.M.
 14—First Quarter 3h. 42m. P.M.
 22—Full Moon 3h. 29m. A.M.
 30—Last Quarter 8h. 35m. A.M.

20—Sun enters AQUARIUS, 7h. 24m.
 10—Moon in Perigee, 8h. A.M.
 26—Moon in Apogee, 8h. A.M.

Day of M.	Day of W.	ANNIVERSARIES AND FESTIVALS.	Sun rises & sets.	Moon rises & sets.	Clock before Sun.	Mean Daily Temp.	D's Age.	Day of Y.
			<i>h. m.</i>	<i>h. m.</i>	<i>m. s.</i>	<i>°</i>		
1	Tu	<i>Circumcision</i>	8 9 r	0m47	3 27	38 2	23	1
2	W	<i>St. Macarius</i>	4 0 s	2 0	4 5	37 6	24	2
3	Th	Lavater died, 1801	8 8 r	3 16	4 32	36 9	25	3
4	F	Roger Ascham died, 1568	4 2 s	4 35	5 0	36 4	26	4
5	S	Mercury trine Uranus	8 8 r	5 56	5 29	36 2	27	5
6	S	EPIPHANY. <i>Twelfth Day</i>	4 5 s	7 14	5 54	35 8	28	6
7	M	<i>Plough Monday</i>	8 7 r	sets.	6 21	35 6	N	7
8	Tu	<i>St. Lucian</i>	4 7 s	4a20	6 47	35 5	1	8
9	W	Sun parallel Saturn	8 6 r	5 51	7 11	35 5	2	9
10	Th	Linaeus died, 1778	4 10 s	7 24	7 37	35 6	3	10
11	F	<i>Hilary Term begins</i>	8 5 r	8 54	8 1	35 7	4	11
12	S	Moon souths, 4h. 24m. 6s. P.M.	4 13 s	10 20	8 25	35 8	5	12
13	S	FIRST SUND. AF EPIPHANY. <i>Camb.</i>	8 4 r	11 44	8 49	35 7	6	13
14	M	<i>Oxford Term begins</i> [<i>Term begins</i>	4 16 s	morn.	9 12	36 2	7	14
15	Tu	Sirius rises, 6h. 22m. P.M.	8 2 r	1 8	9 32	36 6	8	15
16	W	Sun parallel Mercury	4 19 s	2 32	9 54	37 0	9	16
17	Th	B. Franklin born, 1706	8 0 r	3 55	10 14	37 3	10	17
18	F	<i>Old Twelfth Day</i>	4 22 s	5 15	10 33	37 5	11	18
19	S	Sun parallel Venus	7 58 r	6 27	10 53	37 5	12	19
20	S	SEPTUAGESIMA SUNDAY	4 25 s	7 24	11 10	37 5	13	20
21	M	<i>St. Agnes</i>	7 56 r	8 8	11 29	37 6	14	21
22	Tu	<i>St. Vincent</i>	4 29 s	rises.	11 45	37 5	15	22
23	W	William Pitt died, 1805	7 54 r	5a52	12 2	37 5	16	23
24	Th	Day-break, 5h. 54m.	4 32 s	7 4	12 16	37 5	17	24
25	F	<i>Conversion of St. Paul</i>	7 51 r	8 15	12 30	37 2	18	25
26	S	<i>St. Polycarp</i>	4 36 s	9 23	12 44	37 2	19	26
27	S	SEXAGESIMA SUNDAY	7 49 r	10 32	12 56	36 9	20	27
28	M	Peter the Great died, 1725	4 39 s	11 43	13 9	36 7	21	28
29	Tu	Saturn souths, 9h. 0m. P.M.	7 46 r	morn.	13 20	36 3	22	29
30	W	Moon souths, 5h. 48m. A.M.	4 43 s	0 56	13 31	35 9	23	30
31	Th	<i>Hilary Term ends</i>	7 43 r	2 11	13 41	34 5	24	31

ASTRO-METEOROLOGICAL PREDICTIONS.

The planetary positions foreshow a very severe winterly month, with extensive falls of snow. 1st, The year opens with wind and rain—2nd, Finer, and more moderate—3rd, Small rain—4th, Showers, windy—5th, Changeable, gales—6th, Fog or rain—7th, Rain—8th Temperature going down, chiefly fine—9th, Cold and winterly, snow or fog—10th, Downfall, light wind—11th, Finer—12th, Seasonable—13th, High wind, rain or snow—14th, Finer—15th, Cold, windy—16th, Wind continues—17th, Seasonable—18th, Dull, some rain—19th, Dull, much snow or rain—20th, Small rain or fog—21st, Cloudy—22nd to 24th, High wind, occasional showers of rain or sleet—25th Dull and cloudy, with fine intervals—26th, Snow storms prevail, or extensive fog—27th, Windy, more downfall—28th, A change, finer—29th, Temperature falls, snow—30th, Fair—31st, Cloudy for snow or sleet.

February.

MOON'S QUARTERS.

6—New Moon 10h. 35m. A.M.
 13—First Quarter 2h. 12m. A.M.
 20—Full Moon 9h. 40m. P.M.
 29—Last Quarter 1h. 41m. A.M.

19—Sun enters PISCES, 9h. 59m. A.M.
 7—Moon in Perigee, 1h. P.M.
 22—Moon in Apogee, 7h. P.M.

Day of M.	Day of W.	ANNIVERSARIES AND FESTIVALS.	Sun rises & sets.	Moon rises & sets.	Clock before Sun.	Mean Daily Temp.	D's Age.	Day of Y.
			<i>h. m.</i>	<i>h. m.</i>	<i>m. s.</i>	<i>°</i>		
1	F	Pheasant-shooting ends	7 42 r	3m31	13 52	35 3	25	32
2	S	Purification. <i>Candlemas</i>	4 48 s	4 50	13 59	34 7	26	33
3	S	SHROVE SUNDAY	7 38 r	6 2	14 3	34 3	27	34
4	M	Blair died, 1746	4 52 s	7 0	14 11	34 0	28	35
5	Tu	Shrove Tuesday	7 35 r	7 42	14 16	33 6	29	36
6	W	Ash Wednesday [P.M.]	4 55 s	sets.	14 22	33 3	N	37
7	Th	Moon conjunction Jupiter, 9h. 40m	7 32 r	6a23	14 26	32 5	1	38
8	F	Mary Queen of Scots bhd., 1587	4 59 s	7 56	14 29	32 6	2	39
9	S	Sun trine Mars	7 28 r	9 25	14 31	33 0	3	40
10	S	FIRST SUNDAY IN LENT	5 3 s	10 52	14 32	33 3	4	41
11	M	Washington born, 1723	7 25 r	morn.	14 32	34 0	5	42
12	Tu	Cambridge Term divides	5 6 s	0 18	14 31	34 9	6	43
13	W	Ember Week	7 21 r	1 43	14 31	35 9	7	44
14	Th	St. Valentine. <i>Old Cald. Day.</i>	5 10 s	3 5	14 30	36 9	8	45
15	F	Venus trine Uranus	7 17 r	4 20	14 28	37 8	9	46
16	S	Cardinal Bellay died, 1569	5 14 s	5 22	14 25	38 4	10	47
17	S	SECOND SUNDAY IN LENT	7 13 r	6 9	14 21	39 0	11	48
18	M	Charles Lamb (poet) born, 1775	5 17 s	6 44	14 16	39 3	12	49
19	Tu	Copernicus born, 1473	7 9 r	7 8	14 10	39 5	13	50
20	W	David Garrick born, 1716	5 21 s	rises.	14 5	39 6	14	51
21	Th	St. I'erda	7 5 r	6a3	13 59	39 6	15	52
22	F	Sun parallel Mercury	5 25 s	7 13	13 51	39 7	16	53
23	S	Day 10h. 24m. long	7 1 r	8 22	13 42	39 8	17	54
24	S	THIRD SUNDAY IN LENT	5 28 s	9 33	13 34	39 9	18	55
25	M	Sir Christopher Wren died, 1723	6 57 r	10 43	13 24	40 1	19	56
26	Tu	Twilight ends 7h. 23m.	5 32 s	11 56	13 15	39 7	20	57
27	W	Hare-hunting ends	6 53 r	morn.	13 4	38 2	21	58
28	Th	Montaigne born, 1533	5 35 s	1 14	12 56	39 5	22	59
29	F	St. Oswald	5 50 s	2 30	12 43	39 5	23	60

ASTRO-METEOROLOGICAL PREDICTIONS.

A month in which much downfall may be expected; damp prevails. Finest days about the 7th, 8th, and 9th. Tides high on the 6th. 1st and 2nd, Dull and cold, with small rain or sleet—3rd, Temperature low, some downfall—4th, Finer, some wind—6th, Cloudy, light wind—6th, Cold and frosty—7th, Temperature going up, chiefly fine, some wind—8th and 9th, Fine and mild—10th, Temperature falls again—11th, Cold and cloudy—12th, Downfall, fog, very cold—13th, Cold and dull—14th, Showers, changeable—15th, Fog prevails—16th, Chiefly fine, wind—17th, High wind, downfall—18th, Dull—19th, Cloudy for rain—20th, Small rain or fog—21st, Some rain—22nd, Stormy, wintery weather, with rain or sleet—23rd, Cold, and dull—24th, Finer—25th, Dull, small rain—26th, Temperature rises, light wind—27th, Chiefly fine—28th, Showers—29th, Fine, wind.

March.

MOON'S QUARTERS.

6—New Moon8h. 30m. P.M.
 13—First Quarter2h. 36m. P.M.
 21—Full Moon4h. 4m. P.M.
 29—Last Quarter2h. 31m. P.M.

20—Sun enters ARIES, 9h. 49m. A.M.
 7—Moon in Perigee, 1h. A.M.
 20—Moon in Apogee, 8h. P.M.

Day of M.	Day of W.	ANNIVERSARIES AND FESTIVALS.	Sun rises & sets.	Moon rises & sets.	Clock before Sun.	Mean Daily Temp.	Day's Age.	Day of Y.
			<i>h. m.</i>	<i>h. m.</i>	<i>m. s.</i>	<i>°</i>		
1	S	<i>St. David</i>	6 48 r	3m44	12 31	39 4	24	61
2	S	FOURTH SUNDAY IN LENT	5 39 s	4 49	12 19	39 3	25	62
3	M	Mars rises, 9h. P.M.	6 44 r	5 36	12 7	39 2	26	63
4	Tu	Dr. Arne died, 1778	5 42 s	6 10	11 52	39 0	27	64
5	W	Sun conjunction Jupiter	6 40 r	6 34	11 38	38 8	28	65
6	Th	Day 11h. 10m. long	5 46 s	sets.	11 24	38 8	N	66
7	F	<i>St. Perpetua</i>	6 35 r	6a53	11 10	38 8	1	67
8	S	Sun sextile Uranus	5 49 s	8 22	10 55	39 1	2	68
9	S	FIFTH SUNDAY IN LENT	6 31 r	9 53	10 39	39 5	3	69
10	M	Sir Hugh Myddelton died, 1589	5 53 s	11 23	10 24	40 0	4	70
11	Tu	Tasso born, 1544	6 26 r	morn.	10 10	40 5	5	71
12	W	<i>St. Gregory</i>	5 56 s	0 51	9 54	41 1	6	72
13	Th	Sun square Saturn	6 22 r	2 10	9 36	41 5	7	73
14	F	<i>Cambridge Term ends</i>	6 0 s	3 18	9 19	42 0	8	74
15	S	<i>Oxford Term ends</i>	6 17 r	4 10	9 2	42 3	9	75
16	S	PALM SUNDAY	6 3 s	4 49	8 44	42 6	10	76
17	M	<i>St. Patrick</i>	6 13 r	5 15	8 27	42 8	11	77
18	Tu	<i>St. Edmund</i> , King of West Saxons	6 7 s	5 34	8 9	43 1	12	78
19	W	Mars rises, 7h. 37m. P.M.	6 8 r	5 49	7 51	43 3	13	79
20	Th	<i>Maunday Thursday</i>	6 10 s	6 0	7 32	43 5	14	80
21	F	<i>Good Friday</i>	6 4 r	rises.	7 14	43 6	15	81
22	S	Goethe died, 1832	6 13 s	7a22	6 55	43 7	16	82
23	S	EASTER SUNDAY	5 59 r	8 32	6 37	43 9	17	83
24	M	<i>Easter Monday</i>	6 17 s	9 45	6 18	44 1	18	84
25	Tu	<i>Easter Tuesday. Lady-day</i>	5 54 r	11 2	5 59	44 3	19	85
26	W	Saturn souths, 5h. 18m. P.M.	6 20 s	morn.	5 41	44 5	20	86
27	Th	Sun semisextile Venus	5 50 r	0 18	5 22	44 6	21	87
28	F	Day-break, 3h. 46m.	6 23 s	1 33	5 4	44 8	22	88
29	S	Moon souths, 5h. 52m. A.M.	5 45 r	2 39	4 45	44 9	23	89
30	S	LOW SUNDAY	6 27 s	3 31	4 28	45 0	24	90
31	M	Beethoven died, 1827	5 41 r	4 9	4 10	45 1	25	91

ASTRO-METEOROLOGICAL PREDICTIONS.

A cold and wet month, but fine and warm on the 5th, 6th, and 7th days. 1st, Chiefly fine—2nd, Fine, mild—3rd, Dull, small rain—4th, Passing showers—5th to 7th, Fine and warm for the season, some wind—8th, Temperature falls, dull, small rain—9th, Cloudy, light wind—10th, unsettled, wind p.m.—11th, Dull, rain or fog—12th, Seasonable—13th, Cloudy, cold and wet—14th, Cloudy—15th, Finer—16th to 18th, Rain, dull—19th, Showers—20th, Chiefly fine till the 23rd, cold and dull—24th, Finer—25th, Chiefly fine, some wind—26th, Cloudy, small rain—27th, Showers—28th, Cloudy—29th and 30th, Chiefly fine—31st, Seasonable, some wind.

April.

MOON'S QUARTERS.

5—New Moon	5h. 53m. A.M.
12—First Quarter	4h. 53m. A.M.
20—Full Moon	9h. 14m. A.M.
27—Last Quarter	11h. 36m. P.M.

19—Sun enters TAURUS, 9h. 56m. P.M.
4—Moon in Perigee, Oh. P.M.
17—Moon in Apogee, 3h. A.M.

Day of the Week	ANNIVERSARIES AND FESTIVALS.	Sun rises & sets.	Moon rises & sets.	Clock before Sun.	Mean Daily Temp.	Day's Age.	Day of Y.
1	Th <i>All Fool's Day</i>	5 37 r	4-37	4 0	45 1	26	92
2	W <i>Oxford & Cambridge Terms begin</i>	6 34 s	4 55	3 42	45 1	27	93
3	Th <i>Bishop Heber died, 1826</i>	6 33 r	5 11	3 24	45 1	28	94
4	F <i>St. Ambrose</i>	6 37 s	5 26	3 6	45 2	29	95
5	S <i>Sun eclipsed, invisible</i>	5 28 r	sets.	2 48	45 2	N	96
6	S <i>SECOND SUNDAY AFTER EASTER</i>	6 40 s	5a50	2 31	45 1	1	97
7	M <i>Sir Francis Chantrey born, 1781</i>	5 24 r	10 21	2 13	44 9	2	98
8	Tu <i>J. C. Loudon born, 1783</i>	6 44 s	11 49	1 56	44 7	3	99
9	W <i>Lord Bacon died, 1626</i>	5 19 r	morn.	1 39	44 5	4	100
10	Th <i>Venus conjunction Jupiter</i>	6 47 s	1 4	1 22	44 3	5	101
11	F <i>George Canning born, 1770</i>	5 15 r	2 6	1 6	44 2	6	102
12	S <i>Moon souths, 7h. 37m. P.M.</i>	6 51 s	2 50	0 50	44 2	7	103
13	S <i>THIRD SUNDAY AFTER EASTER</i>	5 11 r	3 19	0 34	44 5	8	104
14	M <i>Mercury parallel Jupiter</i>	6 54 s	3 42	0 18	44 7	9	105
15	Tu <i>Easter Term begins</i>	5 6 r	3 58	0 3	45 2	10	106
16	W <i>James Bruce died, 1794</i>	6 57 s	4 9	after.	45 6	11	107
17	Th <i>Day-break, 3h. 49m.</i>	5 2 r	4 20	0 26	46 0	12	108
18	F <i>Jupiter square Saturn</i>	7 1 s	4 30	0 40	46 4	13	109
19	S <i>St. Alphege</i>	4 58 r	4 40	0 54	46 6	14	110
20	S <i>FOURTH SUNDAY AFTER EASTER</i>	7 4 s	rises.	1 7	47 4	15	111
21	M <i>David Mallet (poet) died, 1765</i>	1 54 r	5a19	1 20	47 9	16	112
22	Tu <i>Fielding born, 1707</i>	7 7 s	10 7	1 32	48 6	17	113
23	W <i>St George. Shakespeare b. 1564</i>	4 49 r	11 23	1 44	48 7	18	114
24	Th <i>Mercury sets, 7h. 9m. P.M.</i>	7 11 s	morn.	1 56	49 3	19	115
25	F <i>St. Mark. Cowper died, 1800</i>	4 45 r	0 33	2 7	49 6	20	116
26	S <i>Sun conjunction Mercury</i>	7 14 s	1 29	2 17	50 0	21	117
27	S <i>ROGATION SUNDAY</i>	4 41 r	2 11	2 27	50 4	22	118
28	M <i>Day increased 6h. 50m.</i>	7 17 s	2 39	2 36	50 9	23	119
29	Tu <i>Mercury semi-square Saturn</i>	4 37 r	3 1	2 45	51 3	24	120
30	W <i>Moon conjunction Jupiter</i>	7 21 s	3 17	2 54	51 8	25	121

ASTRO-METEOROLOGICAL PREDICTIONS.

A windy and unsettled month, especially about the 3rd, 18th, and 26th days. 1st, Chiefly fine—2nd, Showers of hail or rain, warm—3rd, Stormy, probably thunder showers—4th, Wind and rain—5th, Cloudy, rain at the eclipse—6th and 7th, Showers—8th Cool, windy—9th, Seasonable—10th, Small rain, fine intervals—11th and 12th, Fine—13th, Showers, wind—14th, Finer, warm—15th, Temperature falls, wet—16th, Dull, light wind—17th, Chiefly fine—18th, Stormy air, rain—19th, Showers—20th, Small rain—21st, Windy, threatening—22nd, Chiefly fine—23rd, Fine and pleasant—24th, Seasonable—25th, Warm—26th and 27th, Windy, showers—28th, Cloudy—29th, Windy—30th, Fine.

May.

MOON'S QUARTERS.

4—New Moon.....2h. 43m. P.M.
 11—First Quarter 8h. 45m. P.M.
 19—Full Moon.....11h. 56m. P.M.
 27—Last Quarter..... 5h. 33m. A.M.

20—Sun enters GEMINI, 10h. 2m. P.M.

2—Moon in Perigee, 7h. P.M.

14—Moon in Apogee, 6h. P.M.

30—Moon in Perigee, Oh. P.M.

Day of M.	Day of W.	ANNIVERSARIES AND FESTIVALS.	Sun rises & sets.	Moon rises & sets.	Clock after Sun.	Mean Daily Temp.	Day's Age.	Day of Y.
			<i>h. m.</i>	<i>h. m.</i>	<i>m. s.</i>	<i>°</i>		
1	Th	<i>Ascension. Holy Thursday</i>	4 33 r	9-30	3 1	52 2	26	123
2	F	Sun semisquare Saturn	7 23 s	3 43	3 9	52 4	27	123
3	S	<i>Invention of the Holy Cross</i>	4 30 r	3 58	3 16	52 5	28	124
4	S	SUNDAY AFTER ASCENSION	7 25 s	sets.	3 22	52 4	N	125
5	M	Moon conjunction Mercury	4 26 r	9a15	3 28	52 0	1	126
6	Tu	<i>St. John the Evangelist</i>	7 27 s	10 41	3 33	51 6	2	127
7	W	Day-break, 1h. 40m.	4 23 r	11 51	3 37	51 7	3	128
8	Th	<i>Easter Term ends</i>	7 32 s	morn.	3 42	52 0	4	129
9	F	Venus trine Mars	4 19 r	0 44	3 45	52 2	5	130
10	S	<i>Oxford Term ends</i>	7 35 s	1 20	3 48	52 4	6	131
11	S	WHIT SUNDAY	4 16 r	1 45	3 51	52 6	7	132
12	M	<i>Whit Monday</i>	7 38 s	2 3	3 52	52 6	8	133
13	Tu	<i>Whit Tuesday</i>	4 13 r	2 17	3 54	52 6	9	134
14	W	<i>Ember Week. Oxford Term begins</i>	7 41 s	2 29	3 54	52 6	10	135
15	Th	Moon conjunction Mars	4 9 r	2 39	3 54	52 5	11	136
16	F	Battle of Albuera, 1811	7 44 s	2 49	3 54	52 4	12	137
17	S	Mars parallel Jupiter	4 7 r	2 58	3 53	52 0	13	138
18	S	TRINITY SUNDAY	7 46 s	3 11	3 51	51 8	14	139
19	M	<i>St. Dunstan</i>	4 4 r	rises.	3 49	52 1	15	140
20	Tu	Albert Durer born, 1471	7 50 s	9a10	3 46	52 8	16	141
21	W	Day 15h. 15m. long	4 2 r	10 23	3 48	53 7	17	142
22	Th	<i>Corpus Christi. Trinity Term begins</i>	7 53 s	11 25	3 39	55 3	18	143
23	F	Lord Rodney died, 1792	3 59 r	morn.	3 34	55 8	19	144
24	S	Queen Victoria born, 1819	7 56 s	0 11	3 29	56 2	20	145
25	S	FIRST SUNDAY AFTER TRINITY	3 57 r	0 43	3 24	56 5	21	146
26	M	<i>St. Augustine</i>	7 58 s	1 7	3 18	56 6	22	147
27	Tu	Dante born, 1265	3 54 r	1 24	3 11	56 9	23	148
28	W	Thomas Moore born, 1780	8 0 s	1 38	3 4	57 4	24	149
29	Th	Sir H. Davy died, 1829	3 52 r	1 51	2 57	57 9	25	150
30	F	Alexander Pope died, 1744	8 2 s	2 4	2 49	58 4	26	151
31	S	Jupiter souths, 7h. 41m. A.M.	3 50 r	2 19	2 41	58 5	27	152

ASTRO-METEOROLOGICAL PREDICTIONS.

The fourth week will be very fine, with high temperature. 1st, Cloudy, showers—2nd and 3rd, Rain and wind—4th and 5th, Fine and warm—6th, Wind, passing showers—7th, Small rain, p.m.—8th, Fine—9th, Cloudy for rain—10th, Cooler, yet fine—11th, Cold and cloudy—12th to 14th, Seasonable—15th, Warm—16th, Light wind—17th, Fine and seasonable—18th, Cloudy—19th, Cooler, rain—20th, Chiefly fine—21st, Dull, small rain—22nd, Fair—23rd and 24th, Fine and warm—25th and 26th, Cloudy—27th, Small rain—28th, Windy, showers—29th, Fine—30th, Overcast—31st, Seasonable.

MOON'S QUARTERS.

2—New Moon11h. 40m. P.M.
 10—First Quarter..... 1h. 50m. P.M.
 18—Full Moon11h. 52m. A.M.
 25—Last Quarter10h. 17m. A.M.

21—Sun enters CANCER, 6h. 37m. A.M.
 11—Moon in Apogee, Oh. P.M.
 25—Moon in Perigee, 7h. A.M.

Day of M.	Day of W.	ANNIVERSARIES AND FESTIVALS.	Sun rises & sets.	Moon rises & sets.	Clock after Sun.	Mean Daily Temp.	J's Age.	Day of Y.
			<i>h. m.</i>	<i>h. m.</i>	<i>m. s.</i>	<i>°</i>		
1	S	SECOND SUNDAY AFTER TRINITY	3 50 r	2m37	2 32	58 8	28	153
2	M	Night 7h. 48m. long	8 6 s	sets.	2 23	59 4	N	154
3	T	William Harvey died, 1657	3 49 r	9a30	2 13	59 5	1	155
4	W	Moon conjunction Saturn	8 8 s	10 32	2 3	59 3	2	156
5	Th	George Loddiges died, 1846	3 47 r	11 16	1 54	59 1	3	157
6	F	Sun parallel Saturn	8 10 s	11 45	1 43	58 9	4	158
7	S	Venus sextile Jupiter	3 49 r	morn.	1 32	58 7	5	159
8	S	THIRD SUNDAY AFTER TRINITY	8 11 s	0 7	1 21	58 6	6	160
9	M	William Lilly died, 1681	3 45 r	0 23	1 10	58 7	7	161
10	Th	Saturn sets, 9h. 1m. P.M.	8 12 s	0 36	0 58	59 0	8	162
11	W	<i>St. Barnabas</i>	3 45 r	0 46	0 46	59 7	9	163
12	Th	<i>Trinity Term ends</i>	8 13 s	0 56	0 34	60 7	10	164
13	F	Madame D'Arblay born, 1752	3 44 r	1 6	0 22	61 0	11	165
14	S	Thomas Pennant born, 1726	8 14 s	1 17	0 10	61 1	12	166
15	S	FOURTH SUNDAY AFTER TRINITY	3 44 r	1 31	before.	61 1	13	167
16	M	Moon souths, 10h. 37m. P.M.	8 15 s	1 49	0 16	61 2	14	168
17	Tu	<i>St. Alban.</i> John Wesley b. 1703	3 44 r	2 15	0 28	61 2	15	169
18	W	Venus parallel Saturn	8 15 s	rises.	0 41	61 0	16	170
19	Th	Pascal born, 1623	3 44 r	10 a 9	0 54	62 8	17	171
20	F	Accession of Queen Victoria	8 15 s	10 45	1 7	60 7	18	172
21	S	Sun conjunction Mercury	3 45 r	11 11	1 20	60 5	19	173
22	S	FIFTH SUNDAY AFTER TRINITY	8 14 s	11 31	1 34	60 5	20	174
23	M	Mark Akenside (poet) died, 1770	3 45 r	11 46	1 47	60 4	21	175
24	Tu	<i>St. John Baptist.</i> Midsummer Day	8 13 s	11 59	2 0	60 3	22	176
25	W	Sun conjunction Saturn	3 46 r	morn.	2 12	60 2	23	177
26	Th	Saturn souths, noon	8 13 s	0 11	2 25	60 0	24	178
27	F	Moon souths, 7h. 30m. A.M.	3 47 r	0 24	2 38	59 7	25	179
28	S	Queen Victoria crowned	8 12 s	0 40	2 50	59 5	26	180
29	S	SIXTH SUNDAY AFTER TRINITY	3 47 r	1 1	3 3	59 6	27	181
30	M	Sun semisquare Uranus	8 11 s	1 29	3 15	59 7	28	182

ASTRO-METEOROLOGICAL PREDICTIONS.

Somewhat below the average temperature, until the end. 1st, Cloudy—2nd and 3rd, Fine—4th, Showers, dull—5th, Cloudy—6th, Cooler, rain—7th, Fine, some wind—8th, Showers, wind—9th, Small rain—10th and 11th, Chiefly fine—12th, Showers—13th, Cooler, cloudy—14th, Fine—15th, Cloudy—16th, Light wind, fine—17th, Rain, wind—18th, Showers, dull—19th, Fine—20th, Threatening—21st, Windy, cloudy for rain—22nd, Changeable, cooler—23rd, Chiefly fine—24th and 25th, Rain or hail, thunderstorms prevail—26th, Showers—27th and 28th, Finer—29th, Heat, very fine—30th, Cooler, cloudy.

July.

MOON'S QUARTERS.

2—New Moon	9h. 30m. A.M.
10—First Quarter	7h. 22m. A.M.
17—Full Moon	9h. 30m. P.M.
24—Last Quarter	3h. 1m. P.M.
31—New Moon	9h. 8m. P.M.

22—Sun enters LEO, 5h. 35m. P.M.

9—Moon in Apogee, 6h. A.M.

21—Moon in Perigee, 6h. A.M.

Day of M.	Day of W.	ANNIVERSARIES AND FESTIVALS.	Sun rises & sets.	Moon rises & sets.	Clock before Sun.	Mean Daily Temp.	D's Age.	Day of Y.
			<i>h. m.</i>	<i>h. m.</i>	<i>m. s.</i>	<i>°</i>		
1	Tu	Venus conjunction Saturn	3 49 r	2=10	3 26	60 7	29	183
2	W	<i>Vis. Blessed Virgin Mary</i>	8 11 s	sets.	3 38	61 3	N	184
3	Th	Dog-days begin	3 50 r	9a45	3 49	60 6	1	185
4	F	<i>Transfiguration of St. Martin</i>	8 10 s	10 10	4 0	61 8	2	186
5	S	<i>Oxford Term ends</i>	3 51 r	10 27	4 11	61 9	3	187
6	S	SEVENTH SUNDAY AFTER TRINITY	8 9 s	10 41	4 21	61 8	4	188
7	M	<i>Thomas à Becket assassinated, 1170</i>	3 53 r	10 52	4 31	61 4	5	189
8	Tu	Moon square Mercury	8 8 s	11 3	4 40	60 9	6	190
9	W	Edmund Burke died, 1797	3 55 r	11 12	4 50	60 6	7	191
10	Th	John Calvin born, 1509	8 7 s	11 23	4 58	60 7	8	192
11	F	Moon souths, 6h. 53m. P.M.	3 57 r	11 36	5 7	61 0	9	193
12	S	Erasmus died, 1536	8 6 s	11 51	5 14	61 3	10	194
13	S	EIGHTH SUNDAY AFTER TRINITY	3 59 r	morn.	5 21	61 6	11	195
14	M	Venus parallel Saturn	8 5 s	0 13	5 29	61 8	12	196
15	Th	<i>St. Swithin</i>	4 1 r	0 45	5 35	61 8	13	197
16	W	Sun sextile Uranus	8 5 s	1 30	5 41	61 5	14	198
17	Th	Dr. Isaac Watts born, 1674	4 3 r	rises.	5 47	61 0	15	199
18	F	Mercury conjunction Saturn	8 4 s	9a14	5 52	60 7	16	200
19	S	Day 16h. 10m. long	4 6 r	9 35	5 56	60 5	17	201
20	S	NINTH SUNDAY AFTER TRINITY	8 3 s	9 52	6 0	60 3	18	202
21	M	Moon souths, 3h. 1m. A.M.	4 8 r	10 6	6 4	60 3	19	203
22	Tu	<i>St. Mary Magdalene</i>	8 1 s	10 18	6 7	60 4	20	204
23	W	Moon conjunction Jupiter	4 11 r	10 32	6 9	60 6	21	205
24	Th	John Dyer (poet) died, 1758	7 59 s	10 46	6 11	60 9	22	206
25	F	<i>St. James</i>	4 14 r	11 6	6 12	61 3	23	207
26	S	<i>St. Ann.</i> Dr. Doddridge b. 1702	7 56 s	11 31	6 12	61 5	24	208
27	S	TENTH SUNDAY AFTER TRINITY	4 17 r	morn.	6 12	61 7	25	209
28	M	Moon conjunction Saturn	7 52 s	0 6	6 12	61 7	26	210
29	Tu	Wilberforce died, 1833	4 20 r	0 55	6 11	61 7	27	211
30	W	Mars souths, 5h. 15m. P.M.	7 49 s	1 59	6 9	61 6	28	212
31	Th	Moon conjunction Mercury	4 23 r	sets.	6 6	61 5	N	213

ASTRO-METEOROLOGICAL PREDICTIONS.

Expect an excess of rain this month, with heavy thunder-storms about the middle. 1st, Small rain, dull—2nd, Cloudy—3rd, Chiefly fine, light wind—4th, Fine and warm—5th, Cooler, cloudy, showers—6th, Rain, cool—7th to 11th, Fine and seasonable weather—12th, Hot, thunder-storms prevail—13th, Seasonable—14th, Changeable, some rain—15th, Cloudy—16th, Cooler, wind—17th, Showers, cloudy—18th, Rain and wind—19th, Showers—20th, Dashing rains—21st to 24th, Finer—25th, Cloudy, light wind—26th, Chiefly fine—27th and 28th, Fine—29th, Cooler—30th, Light wind—31st, Cool and cloudy, showers.

September.

MOON'S QUARTERS.

7—First Quarter	3h. 57m. P.M.
14—Full Moon	2h. 8m. P.M.
21—Last Quarter	5h. 48m. A.M.
29—New Moon	3h. 48m. A.M.

22—Sun enters LIBRA, 8h. 58m. P.M.
2—Moon in Apogee, 3h. P.M.
15—Moon in Perigee, 8h. A.M.
29—Moon in Apogee, 11h. P.M.

Day of M.	Day of W.	ANNIVERSARIES AND FESTIVALS.	Sun rises & sets.	Moon rises & sets.	Clock after Sun.	Mean Daily Temp.	D's Age.	Day of Y.
			<i>h. m.</i>	<i>h. m.</i>	<i>m. s.</i>	<i>°</i>		
1	M	<i>St. Giles.</i> Partridge-shooting beg.	5 14 r	7 27	0 5	59 7	2	245
2	Tu	London burnt, 1666 o.s.	6 44 s	7 37	0 24	59 4	3	246
3	W	Day-break, 3h. 12m.	5 17 r	7 47	0 43	58 8	4	247
4	Th	Sun sextile Saturn	6 40 s	8 0	1 2	58 5	5	248
5	F	Dr. Patrick Neill died, 1851	5 21 r	8 15	1 23	58 5	6	249
6	S	Moon souths, 4h. 58m. P.M.	6 35 s	8 38	1 42	58 5	7	250
7	S	SIXTEENTH SUNDAY AFT. TRINITY	5 24 r	9 10	2 2	58 7	8	251
8	M	<i>Nativity of Blessed Virgin Mary</i>	6 30 s	9 56	2 23	59 2	9	252
9	Tu	Sir H. Gilbert perished at sea, 1583	5 27 r	11 1	2 43	59 5	10	253
10	W	Sun parallel Mercury	6 25 s	morn.	3 4	59 7	11	254
11	Th	Thomson (poet) born, 1700	5 31 r	0 22	3 5	59 9	12	255
12	F	Venus parallel Jupiter	6 21 s	1 51	3 45	59 9	13	256
13	S	Charles James Fox died, 1806	5 33 r	3 25	4 8	59 7	14	257
14	S	SEVENTEENTH SUNDAY AFT. TRINITY	6 16 s	rises.	4 27	59 7	15	258
15	M	Moon conjunction Jupiter	5 37 r	6a43	4 49	59 7	16	259
16	Tu	Twilight ends, 8h. 11m.	6 11 s	6 57	5 10	58 2	17	260
17	W	<i>Ember Week</i>	5 40 r	7 13	5 31	58 3	18	261
18	Th	Dr. Johnson born, 1709	6 7 s	7 35	5 52	57 6	19	262
19	F	Venus square Saturn	5 43 r	8 2	6 13	56 8	20	263
20	S	Battle of Alma, 1854	6 2 s	8 46	6 34	56 2	21	264
21	S	EIGHTEENTH SUNDAY AFT. TRINITY	5 46 r	9 41	6 55	55 4	22	265
22	M	Autumn commences	5 57 s	10 49	7 26	54 8	23	266
23	Tu	Mars trine Jupiter	5 49 r	morn.	7 42	54 3	24	267
24	W	Jupiter souths, midnight	5 53 s	0 5	8 2	53 8	25	268
25	Th	A. G. Werner born, 1750	5 53 r	1 21	8 23	52 8	26	269
26	F	<i>St. Cyprian</i>	5 48 s	2 36	8 43	52 8	27	270
27	S	Sun opposition Jupiter	5 56 r	3 50	9 4	52 3	28	271
28	S	NINETEENTH SUNDAY AFT. TRINITY	5 44 s	4 59	9 23	52 3	29	272
29	M	<i>Michaelmas Day.</i> Sun eclipsed,	5 59 r	sets.	9 43	52 5	N	273
30	Tu	<i>St. Jerome</i> [invisible]	5 40 s	5a57	10 3	53 0	1	274

ASTRO-METEOROLOGICAL PREDICTIONS.

The first half of this month will be cool and wet, the latter fine and drier. 1st, Light wind—2nd, Cloudy—3rd, Dull, small rain—4th, Temperature falls, rain or fog—5th, Chiefly fine, warmer—6th, Rain—7th, Windy, fair—8th, Very fine—9th, Turbulent air, hail or rain—10th, Windy—11th, Wind and rain—12th, Fine and warm—13th to 15th, Chiefly fine—16th, Rain and wind—17th and 18th, Cold and cloudy—19th, Dull, small rain or fog—20th, Cloudy—21st, Fine and warm—22nd, Threatening, chiefly fine and warm—23rd, Warm, hail or rain—24th, Unsettled—25th, Small rain—26th, Fine—27th, Fine and warm for the season—28th, Cooler, dull—29th, Fair—30th, Cloudy.

October.

MOON'S QUARTERS.

7—First Quarter 5h. 36m. A.M.
 13—Full Moon 10h. 59m. P.M.
 20—Last Quarter 6h. 6m. P.M.
 28—New Moon 9h. 54m P.M.

23—Sun enters SCORPIO, 5h. 11m. A.M.
 13—Moon in Perigee, 7h. P.M.
 27—Moon in Apogee, 1h. A.M.

Day of M.	Day of W.	ANNIVERSARIES AND FESTIVALS.	Sun rises & sets.	Moon rises & sets.	Clock after Sun.	Mean Daily Temp.	Day's Age.	Day of Y.
			<i>h. m.</i>	<i>h. m.</i>	<i>m. s.</i>	<i>°</i>		
1	W	<i>St. Remigius</i>	6 2 r	6 a 9	10 17	53 6	2	275
2	Th	Moon souths, 2h. 8m. P.M.	5 36 s	6 23	10 40	53 7	3	276
3	F	Robert Barclay died, 1790	6 6 r	6 42	10 59	53 6	4	277
4	S	Moon conjunction Mars	5 31 s	7 9	11 18	53 3	5	278
5	S	TWENTIETH SUNDAY AF. TRINITY	6 9 r	7 49	11 35	52 6	6	279
6	M	<i>St. Faith</i>	5 26 s	8 44	11 56	51 7	7	280
7	Tu	Day-break, 4h. 15m.	6 13 r	9 56	12 12	51 4	8	281
8	W	Henry Fielding died, 1754	5 21 s	11 20	12 30	51 4	9	282
9	Th	<i>St. Denys</i>	6 16 r	morn.	12 48	51 4	10	283
10	F	<i>Oxford and Cambridge Terms begin</i>	5 17 s	0 50	13 3	51 4	11	284
11	S	<i>Old Michaelmas Day</i>	6 10 r	2 19	13 19	51 4	12	285
12	S	TWENTY-FIRST SUND. AF. TRINITY	5 13 s	3 52	13 33	51 3	13	286
13	M	Moon eclipsed, visible	6 23 r	rises.	13 48	51 0	14	287
14	Tu	William Penn born, 1644	5 8 s	5a17	14 2	50 7	15	288
15	W	Jupiter sets, 4h. 40m. A.M.	6 26 r	5 35	14 15	50 3	16	289
16	Th	Moon conjunction Uranus	5 4 s	6 1	14 27	49 5	17	290
17	F	Sir Philip Sydney killed, 1586	6 29 r	6 38	14 39	48 8	18	291
18	S	<i>St. Luke</i>	4 59 s	7 30	14 51	48 2	19	292
19	S	TWENTY-SECOND SUN. AF. TRINITY	6 33 r	8 35	15 2	47 6	20	293
20	M	Coleridge born, 1772	4 55 s	9 50	15 12	47 0	21	294
21	Tu	Nelson killed, 1805	6 36 r	11 9	15 21	46 5	22	295
22	W	Venus opposition Uranus	4 51 s	morn.	15 30	46 0	23	296
23	Th	Day 10h. 8m. long	6 40 r	0 25	15 38	45 5	24	297
24	F	Queen Jane Seymour died, 1537	4 47 s	1 39	15 46	45 1	25	298
25	S	<i>St. Crispin</i>	6 43 r	2 50	15 52	44 7	26	299
26	S	TWENTY-THIRD SUND. AF. TRINITY	4 43 s	3 58	15 58	44 6	27	300
27	M	Sir Walter Raleigh beheaded, 1618	6 47 r	5 8	16 3	43 2	28	301
28	Tu	<i>St. Simon and St. Jude</i>	4 39 s	sets.	16 8	45 4	N	302
29	W	John Keats born, 1796	6 50 r	4a30	16 11	46 2	1	303
30	Th	Moon souths, 0h. 51m. P.M.	4 35 s	4 47	16 14	46 2	2	304
31	F	John Evelyn born, 1620	6 54 r	5 13	16 16	46 6	3	305

ASTRO-METEOROLOGICAL PREDICTIONS.

A seasonal month this year. Look for numerous falling stars and other meteors of an electrical kind between the 17th and 26th. 1st, Chiefly fine—2nd, Temperature falls, cloudy—3rd, Cloudy—4th, Fine, wind—5th, Showers, fine intervals—6th, Changeable, probably thunder—7th, Cool, turbulent air—8th and 9th, Fine—10th, Seasonable light wind—11th, Cooler, cloudy for rain—12th, Fine—13th, Showers at the eclipse—14th, Dull, small rain or fog—15th, Chiefly fine—16th, Temperature going down, some wind—18th, Wind continues—19th, Squally—20th, Showers—21st, Threatening—22nd, Small rain, foggy—23rd, Finer—24th, Fair and pleasant—25th, Changeable—26th, Dull, small rain or fog—27th, Finer—28th, Seasonable—29th, Warm, misty—30th, Showers—31st, Dull and rainy, fog prevails.

November.

MOON'S QUARTERS.

5—First Quarter 5h. 22m. P.M.
 12—Full Moon..... 8h. 55m. A.M.
 19—Last Quarter.....10h. 34m. A.M.
 27—New Moon 4h. 1m. P.M.

22—Sun enters SAGITTARIUS, 1h. 51m. A.M.
 11—Moon in Perigee, 6h. A.M.
 23—Moon in Apogee, 0h. P.M.

Day of M.	Day of W.	ANNIVERSARIES AND FESTIVALS.	Sun rises & sets.	Moon rises & sets.	Clock after Sun.	Mean Daily Temp.	D's Age.	Day of Y.
1	S	<i>All Saints</i>	<i>h. m.</i> 6 56 r	<i>h. m.</i> 5a48	<i>m. s.</i> 16 17	46 6	4	306
2	S	TWENTY-FOURTH SUN. AF. TRINITY	4 30 s	6 38	16 18	46 2	5	307
3	M	Moon souths, 4h. 22m. P.M.	6 59 r	7 44	16 18	46 0	6	308
4	Tu	William III. landed, 1688	4 27 s	9 2	16 17	46 1	7	309
5	W	Battle of Inkermann, 1854	7 2 r	10 23	16 15	46 3	8	310
6	Th	Gustavus Adolphus died, 1632	4 23 s	11 53	16 12	46 3	9	311
7	F	John Milton died, 1674	7 6 r	morn.	16 9	46 3	10	312
8	S	Camden died, 1632	4 20 s	1 20	16 4	46 2	11	313
9	S	TWENTY-FIFTH SUND. AF. TRINITY	7 10 r	2 48	15 59	46 0	12	314
10	M	Martin Luther born, 1483	4 16 s	4 17	15 53	45 7	13	315
11	Tu	<i>St. Martin</i>	7 14 r	5 50	15 46	45 3	14	316
12	W	<i>Cambridge Term divides</i>	4 12 s	rises.	15 39	44 8	15	317
13	Th	Sir John Moore born, 1761	7 17 r	4a29	15 30	44 3	16	318
14	F	Sun parallel Uranus	4 9 s	5 14	15 21	44 0	17	319
15	S	William Cowper born, 1731	7 21 r	6 17	15 10	43 8	18	320
16	S	TWENTY-SIXTH SUND. AF. TRINITY	4 6 s	7 31	14 59	43 7	19	321
17	M	Day 8h. 12m. long	7 24 r	8 51	14 47	43 6	20	322
18	Tu	Cardinal Wolsey died, 1530	4 4 s	10 10	14 35	43 5	21	323
19	W	Mercury sextile Mars	7 27 r	11 25	14 21	43 5	22	324
20	Th	<i>St. Edmund King and Martyr</i>	4 1 s	morn.	14 6	43 4	23	325
21	F	Princess Royal born, 1840	7 32 r	0 37	13 51	43 4	24	326
22	S	<i>St. Cecilia</i>	3 57 s	1 47	13 35	43 4	25	327
23	S	TWENTY-SEVENTH SUN. AF. TRINITY	7 36 r	2 56	13 18	43 5	26	328
24	M	John Knox died, 1572	3 55 s	4 7	13 0	43 5	27	329
25	Tu	<i>St. Catherine</i>	7 31 r	5 19	12 42	43 5	28	330
26	W	Dr. Isaac Watts died, 1748	3 54 s	6 33	12 23	43 6	29	331
27	Th	Mars trine Uranus	7 44 r	sets.	12 3	43 6	N	332
28	F	Oliver Goldsmith born, 1713	3 53 s	3a49	11 42	43 6	1	333
29	S	John Ray born, 1628	7 45 r	4 34	11 21	43 6	2	334
30	S	FIRST SUNDAY IN ADVENT	3 51 s	5 37	10 59	43 5	3	335

ASTRO-METEOROLOGICAL PREDICTIONS.

A stormy period, especially during the third week. Meteors will be observed from the 12th to the 14th. 1st, Chiefly fine—2nd, Dull, rain or fog—3rd and 4th, Seasonable—5th, Cloudy, showers—6th, Cold and cloudy, downfall—7th, Dull, foggy—8th and 9th, Chiefly fine—10th, Cloudy for rain—11th, Light wind—12th, Showers—13th, Seasonable—14th and 15th, Cold and dull, with rain or sleet—16th, Stormy, turbulent air, with rain or snow—17th, Changeable, cloudy—18th, Dull, small rain and fog—19th, Wind and rain—20th, Cold and dull, rain—21st, Finer, mild—22nd, Changeable—23rd, Windy, cloudy—24th, Chiefly fine, wind—25th, Some rain—26th, Small rain, dull—27th, Dull, foggy—28th, Chiefly fine, strong wind—29th and 30th, Dull and cold.

December.

MOON'S QUARTERS.

5—First Quarter3h. 26m. A.M.
 11—Full Moon8h. 13m. P.M.
 19—Last Quarter6h. 44m. A.M.
 27—New Moon.....8h. 45m. A.M.

21—Sun enters CAPRICORNUS, 2h. 39m. P.M.
 9—Moon in Perigee, 0h. P.M.
 21—Moon in Apogee, 6h. A.M.

Day of M.	Day of W.	ANNIVERSARIES AND FESTIVALS.	Sun rises & sets.	Moon rises & sets.	Clock after Sun.	Mean Daily Temp.	D's Age.	Day of Y.
1	M	Leo X. died, 1521	h. m.	h. m.	m. s.	°		
2	Tu	Mars souths, 3h. 8m. P.M.	7 47 r	6a52	10 36	43 3	4	336
3	W	Sun parallel Saturn	3 51 s	8 13	10 13	43 0	5	337
4	Th	Richelieu died, 1642	7 49 r	9 38	9 49	42 3	6	338
5	F	Sun semisquare Mars	3 51 s	11 3	9 24	41 2	7	339
6	S	St. Nicholas	7 52 r	morn.	8 59	40 5	8	340
7	S	SECOND SUNDAY IN ADVENT	3 50 s	0 28	8 34	39 7	9	341
8	M	Conception of Blessed Virgin Mary	7 54 r	1 52	8 8	39 4	10	342
9	Tu	John Milton born, 1608	3 49 s	3 19	7 41	39 2	11	343
10	W	Sun conjunction Mercury	7 56 r	4 51	7 14	39 0	12	344
11	Th	Day 7h. 50m. long	3 49 s	6 24	6 47	39 0	13	345
12	F	Moon souths, midnight	7 58 r	rises.	6 19	39 1	14	346
13	S	St. Lucy	3 48 s	3a55	5 51	39 4	15	347
14	S	THIRD SUNDAY IN ADVENT	8 0 r	5 5	5 23	39 8	16	348
15	M	Henri IV. born, 1553	3 49 s	6 25	4 54	40 2	17	349
16	Tu	Cambridge Term ends	8 2 r	7 47	4 25	40 4	18	350
17	W	Oxford Term ends. Ember Week	3 49 s	9 6	3 56	40 6	19	351
18	Th	Philip Miller died, 1771	8 3 r	10 21	3 26	40 7	20	352
19	F	Tycho Brahe born, 1586	3 49 s	11 33	2 57	40 4	21	353
20	S	Night 16h. 16m. long	8 4 r	morn.	2 27	40 0	22	354
21	S	FOURTH SUNDAY IN ADVENT	3 49 s	0 42	1 57	39 5	23	355
22	M	Dr. Wollaston died, 1828	8 5 r	1 52	1 27	39 0	24	356
23	Tu	Jupiter rises, noon	3 50 s	3 4	0 57	38 5	25	357
24	W	George Crabbe born, 1754	8 6 r	4 17	0 27	38 4	26	358
25	Th	CHRISTMAS DAY	3 51 s	5 33	before	38 3	27	359
26	F	St. Stephen	8 7 r	6 48	0 33	38 0	28	360
27	S	St. John the Evangelist	3 52 s	7 57	1 3	37 9	29	361
28	S	SUNDAY AFTER CHRISTMAS	8 7 r	sets.	1 33	37 9	N	362
29	M	John Wycliffe died, 1384	3 54 s	4a38	2 2	38 2	1	363
30	Tu	Roger Ascham died, 1568	8 8 r	6 0	2 32	38 4	2	364
31	W	St. Silvester	3 55 s	7 26	3 1	38 2	3	365
			8 8 r	8 51	3 30	38 0	4	366

ASTRO-METEOROLOGICAL PREDICTIONS.

Dull weather, with much downfall the second week, and at the end of the year. 1st, Fog and small rain—2nd, Dull, turbulent air—3rd, Windy, cold and dull—4th, Damp and foggy—5th and 6th, Milder—7th, Seasonable—8th, Small rain, dull—9th, Cloudy—10th, Windy, cloudy—11th, Rain—12th, Chiefly fine—13th, Cold and cloudy, rain—14th, Fog and rain—15th, Fine—16th and 17th, Wind—18th, Seasonable—19th and 20th, Chiefly fine—21st, Light wind—22nd, Generally fine and mild—23rd, Seasonable—24th, Stormy, rain or snow—25th, A dull Christmas, rain—26th, Cloudy—27th, Finer, some wind—28th, Cold and cloudy—29th, Dull, foggy, rain—30th, Wind and rain—31st, Chiefly fine.

JANUARY.

Stern winter's icy breath, intensely keen,
Now chills the blood and withers every green;
Bright shines the azure sky, serenely fair,
Or driving snows obscure the turbid air.

FLORICULTURAL OPERATIONS.

ANNUALS.—If seed was omitted sowing in autumn for early blooming plants next spring, now sow some in small pots, place them in a frame free from frost, and turn out into beds early in April. Where seeds were sown in autumn, keep the plants free from fallen leaves, or other litter. Sow a few more towards end of the month. Sow Auriculas and Polyanthus in pans, and place in a shady part of a cool frame. Prune Roses, and sprinkle the heads over freely with soot and lime liquid, as it will destroy moss or insects, and preserve them from the ravages of such enemies in summer. Plant Roses and Hollyhocks immediately, or they will not bloom well this season. Carnations, etc., in pots must have air liberally; if attacked by mildew, dust over and under with sulphur, also protect from severe frost and excess of rain. Prepare compost for the show-plants to grow in. Pinks and Pansies in beds must have the soil pressed closely round the main stem, and a number of sticks be pricked among the shoots, or they must be secured by pegs, so they are not twisted by the wind. A low hedge, formed of yew or fir branches along the sides, will also be beneficial, as a protection from wind. Pinks, Carnations, etc., sprinkled over with soot, will preserve them from hares, rabbits, and snails. Tulips, Hyacinths, and other bulbs in beds, protect from severe frost; an inverted garden-pot will do. Also protect the beds of Ranunculuses and Anemones which were planted in autumn. Gladioluses to succeed the autumn planted should now be planted, and a few more in February, March, and April; they will bloom in succession to the end of November. Verbenas guard against damp and mildew; admit dry air, and dust over and under with sulphur. To propagate early, place a few plants in gentle warmth. If green-fly attack them, tobacco-smoke must be given. Tulips, have the soil pressed closely round the plant. Fresh loam must be added to all flower-beds; it promotes an abundance of flowers; also give well-rotted manure or leaf-mould. Divide large plants of the herbaceous class of the borders, replant, etc. Shrubs, layers of most kinds, may now be made; plant where required. Lobelias of the erect-growing class, must be guarded from an excess of wet; but towards the end of the month place them in a rather warmer situation, and gradually encourage the offsets to grow, in order to divide and pot singly in February. Prune Roses, protect the heads of tender ones. Box, edgings of it ought to be planted in autumn, but if required now, sooner the better. Ranunculus bed for the show-class of flowers throw the soil out to the depth of a foot or more, in order to admit the compost for planting in next month. Dahlias, see the roots are not shrivelling; pot any choice kinds for early striking.

FORCING STOVE, FRAME, ETC.—In order to have early, or very large plants of Cockscomb, Globe Amaranthus, Balsams, Salpiglossis, etc., sow seeds by the middle of the month; also a portion of Ten Week and German Stocks in pots or slight hotbed; also other handsome half-hardy kinds or flowers to bloom early. Amaryllis, Sprekelias, etc., now repot; also begin to push (gradually), for early bloom, some of the Achimenes; give one good watering to Achimenes at first; the plants will soon push, then pot singly, when the plants are an inch high. Gloxinias and Gesnerias, give but a little water to start them, as much would rot them, and when the shoots appear then increase the quantity. Bedding plants, any that have fresh shoots, and plants are required of them, take off cuttings, strike, etc.; or place the old plants in higher temperature, to push them into growth, such as Fuchsias, Salvias, Heliotropes, Anagallis, Hemimeris, Cupheas, Geraniums, etc. The Bouvardias are best increased by the roots; cut them into pieces an inch long, and cover them half an inch in silver-sand, place them where they get bottom heat, and they soon push shoots; then pot singly. Sow Mignonette in pots for early bloom. The autumn-sown plants must have dry and mild air. Composts, now provide heaps of the various soils and manures. Flower-beds should have an addition of fresh loam, it very much increases a profusion of bloom. Add manures to beds where requisite.

GREENHOUSE, ETC.—Tender Annuals for summer ornamenting the greenhouse, or planting out in open beds, sow a portion now for early blooming. Never give fire-heat to Ericas as long as you can preserve them from frost, and except in very windy or foggy weather; let them, as well as Epacris, Azaleas, and indeed all the class of New Holland plants, have a free supply of air, allowing the gentle winds to blow upon them. Let

watering be done in the morning, so that damp may be dried up. Damp must be guarded against; apply a gentle fire to dry it up, if not otherwise done. Fuchsias now prune in, and repot the large plants which are required for early bloom or to furnish cuttings for striking, and supply new plants for late summer blooming. *Tropaeolum tricolorum* and the other tuberous-rooted must now be potted. Camellias, keep the entire ball of soil regularly moist, or the flower-buds will drop; thin the crowded buds. Pot *Alstromerias*, *Ixias*, and *Oxalis*, with any other greenhouse bulbous-rooted plants. *Pelargoniums*, now spread the branches outwards, in order to properly form the plant, bringing some as low as the rim of the pot. Cuttings of *Azaleas* strike root much more freely early in the spring than later on, therefore now place in a gentle heat any stock plant, in order to obtain the half-ripened shoots by the proper period, such being best for rooting in silver-sand, with bottom heat. *Cinerarias*, if green-fly attack them, fumigate with tobacco immediately. Also fumigate the general stock of greenhouse plants, if any of these insects appear.

FEBRUARY.

Winter, still lingering on the verge of Spring,
Retires reluctant, and from time to time
Looks back, while at his keen and chilling breath
Fair Flora sickens.

FLORICULTURAL OPERATIONS.

FLOWER GARDEN.—Annuals, sow the hardy towards the end of the month, and tender ones in pots immediately, or on gentle hotbeds, as Stocks, China Asters, French Marigold, etc. Stir the surface of all flower-beds, add manure and fresh loam, divide and replant the hardy herbaceous flowers; if deferred much longer, the plants will not get well rooted before the tops shoot, and thus will be weakly. Bulbs, protect beds of, from frost and strong winds; also of autumn-planted Anemone and Ranunculus. Auriculas and Polyanthuses, take off any offsets, top, dress, keep from frost, give air freely, and sow seeds of. Pansies in pots, put into blooming-pots. Dahlia cuttings strike in moist temperature, also Verbenas. Ranunculus bed make directly; it will duly settle by the 15th; then have them planted, also Anemones, Carnations, Picotees, Pinks, and Pansies in pots, allow all air possible, and if the leaves begin to be spotted, dust them over and under with sulphur. Lobelias, divide and pot the suckers of the tall kinds. See that there is a sufficiency of bedding-plants in course of preparation. Violets, attend to; have a supply of flowers till May. Give manure-water twice a week to Auriculas and Polyanthuses; sheep-dung, put into a tub with soft water, is the best for them. Pansies may also have some. Sow Mignonette in pots, for boxes. Tuberoses, plant in pots, or open border in a warm situation. Shrubs for forcing next winter should now be potted, such as Persian Lilacs, Kalmias, Azaleas, etc. Verbenas, mind the mildew attacks, sprinkle over and under with sulphur, strike cuttings now. If green-fly attack, fumigate. Chrysanthemums must be protected from severe frost.

GREENHOUSE.—*Cinerarias* repot; if the green-fly attack, fumigate immediately. Place them near the glass; a pit-frame, dry, is best. *Calceolarias*, repot; sow seed. Camellias, inarch or graft; before the new shoots begin to push, place in a hotbed frame. Do not allow the blooming-plants to lack water, or flower-buds will drop; cuttings of the single put in to graft upon. *Pelargoniums*, to bloom in May, now repot into blooming-pots. Repot the smaller plants, too. *Epacris*, *Corræas*, *Acacias*, *Coronillas*, etc., will now be gay; water seldom, but give as much as will moisten the entire ball at each time. *Ericas* attacked with mildew, sprinkle over and under. *Alstromerias*, repot. Air admit freely when dry and mild. Azaleas, place in warmest part. Chinese Primroses, give manure-water; it improves the colours of flowers. Fuchsias, prune and start the best sorts in a hotbed; train, put in cuttings. Begonias, some are fine for bloom now. Show *Pelargoniums* must be put into their blooming-pots, with balls entire. Scarlet *Pelargoniums*, see to the large plants, pot if required for extra specimens, etc., gently bring them on. Insects will now be moving, fumigate, sulphur, etc., and attend to it at once. Pot the *Lilium lancifolium* for early bloom.

FORCING-STOVE OR FRAME.—*Achimenes*, *Amaryllis*, *Gloxinias*, *Gesnerias*, etc., now start another lot, and pot off any which were started last month. Sow seeds of Balsam, Cockscomb, Globe Amaranthus, *Salpiglossis*, and all the other tender Annuals for summer ornamenting the greenhouse, and keep the surface-soil just moist at all times, till the plants are up and rooted. Hyacinths, let them be near the glass and free air, change the water every fourth day. Put in cuttings of all plants required for bedding. *Cinerarias*,

bring some forward; destroy green-fly. *Ixoras*, and similar plants for exhibiting, must be repotted, and the general stock of plants should be repotted this month, pruned, and trained. A hot but moist temperature is best for the above purposes. Roses, frequently syringe, guard against green-fly.

MARCH.

Now shifting gales with milder influence blow,
Cloud o'er the skies, and melt the falling snow;
The softened earth with fertile moisture teems,
And, freed from icy bonds, down rush the swelling streams.

FLORICULTURAL OPERATIONS.

FLOWER GARDEN.—The summer display principally depends on the preparations made this month; therefore not only provide an abundance of suitable stock, but rather be beforehand with it too. Do not delay a single day in the operations necessary, and have a plan made of the garden, lawn beds, etc., and upon it arrange the best contrasted colours, then set to it in earnest to provide suitable plants, vigorous and abundant, and prevent a failure of show.

Annuals, hardy, sow on dry borders, half-hardy, as *Asters*, *Stocks*, etc., as well as the tender ones, in pots, placed in heat, or on gentle hotbeds. If there be too many plants in a patch of the autumn-sown hardy annuals, transplant the surplus. Provide pots of *Mignonette* for boxes, sow seed thinly, and pull up all plants but three or four, and when fit to turn out with entire balls into boxes, let it be done; a succession must in due course be provided. Pansies in pots should be repotted into the pots to be shown in, and give manure-water twice a week. Pinch off the present flowers in or out of bloom. *Auriculas* and *Polyanthuses* must have air freely to keep them robust; but protect from wet lodging in the hearts. Give manure twice a week. Sheep's dung and soft water make the best liquid for them. *Carnations* and *Picotees*, in wet seasons, are often attacked by mildew, and the leaves are spotted; dust the plants over and under with sulphur, in such continuous weather, and it will prevent the mildew. Protect from cutting winds; now is the trying time with them. The last week of the month pot off the plants which are to produce the exhibition flowers, in a compost of two barrowfuls of fresh yellow loam, three of well-rotted horsedung, and half a barrowful of river sand, well mixed, but not sifted. *Lilium lancifolium*, and its varieties, should now be potted, or planted in the open ground. *Phloxes* be divided; if in pots, turned out into border. *Pink* and *Pansy* beds should be dressed, adding to the surface two or three inches of equal parts of fresh loam and well-rotted manure, mixing it with the top soil of the bed; secure the plants from being twisted by wind. *Tulips* will now grow fast; have the soil firm round the plant, protect from frost, strong winds, and excess of rain. *Verbenas*, pot off newly struck cuttings; repot the stock plants which are to be exhibited in pots, and nip off the leads to form bushy, spreading plants; fumigate occasionally, and dust the under side of the leaves with sulphur, to prevent red spider attacks. Protect beds of *Hyacinths*, *Ranunculus*, etc., if severe weather occurs. Tie the stems of *Hyacinths* to sticks, or strong winds will break them off. Divide and replant hardy herbaceous perennials; as *Phloxes*, *Veronicas*, etc. Plant out *Canterbury Bella*, *Scabious*, *Sweet Williams*, *Wallflowers*, etc. *Violets*, take off runners, and plant in frames for next season's supply of flowers. Bedding plants, which are in the cutting-pots, should be potted off to get them strong; and repot those which are in thumb-pots. *Chrysanthemums*, to bloom in the open ground, must now be planted; let the soil be rich; if placed where some of the stems can be layered in June or July, the ends will make pretty dwarf bushy plants; put in cuttings for pot culture, one cutting in each sixty-sized pot. *Hollyhocks* in pots turn out into the open ground in deep rich soil.

GREENHOUSE.—*Cinerarias* must be put in their blooming-pots, water freely, and fumigate about once a fortnight, or green-fly will prevail. *Chinese Primroses*, give a liberal supply of water, twice a week give manure-water, and the flowers will be of much brighter colour. Sow seed for plants which are to bloom next winter. *Calceolarias*, repot into blooming-pots; let them have all the air possible; only preserve from harm by frost, and fumigate once a fortnight. *Fuchsias*, repot; and now begin to train and form them; the pyramidal shape is the best; standards, with large heads, are pretty. *Pelargoniums*, train and arrange the branches of the large plants. Such plants as are desired to bloom after July must have the leading shoots stopped now. Give liquid manure to the large show specimens every third watering. Syringe overhead twice a week with soft water. Almost

all young plants potted in autumn, or recently from the cuttings put off in autumn, will require the leading shoot to be stopped, in order to have bushy plants. Tender Annuals, as *Salpiglossis*, *Globe Amaranthus*, *Balsams*, etc., for ornament in summer, now pot off singly. *Camellias* done blooming, promote their growth, and put in cuttings of the single flowers for grafting. *Chrysanthemums*, pot off cuttings, and pot off autumn-struck ones; pinch off the leads. Green-fly; fumigate, or dip over head in strong tobacco-water; any plant attacked do not delay.

STOVE.—Pot or repot *Amaryllis*, *Gesnerias*, *Gloxinias*, *Achimenes*, and other similar plants; do not delay. *Ixoras*, and such like plants, for exhibitions, repot, stop, and tie out; bottom heat is essential to success with *Ixoras*, and most others of this class of plants. Syringe overhead every morning, and frequently pour water over the paths. *Achimenes*, *Æschynanthus*, etc., intended to be grown in baskets, should now be put in them.

APRIL.

Now daisies pied, and violets blue,
And lady-smocks of silver white,
And cuckoo buds of yellow hue,
Do paint the meadows with delight:
The cuckoo now on every tree
Sings cuckoo, cuckoo.

SHAKESPEARE.

FLORICULTURAL OPERATIONS.

FLOWER GARDEN.—Let the previously prepared plan of beds, and the present stock of plants be examined, in order to have a due supply, and lose not a day in beginning to provide for deficiencies. Have all your plants bushy as possible; attend to stopping the leading shoots. Sow a succession of hardy and half-hardy Annuals, and the last week of the month sow seeds of biennials, as *Hollyhocks*, *Sweet Williams*, *Scabious*, *Canterbury Bells*, etc., also seeds of perennials. *Auriculas* and *Polyanthuses*, shade, give plenty of air, and secure the stems; give manure-water every third watering. Pot off new-struck *Dahlias*, and repot those you intend to grow for exhibition, so as to have the plants strong and robust by turning-out time. Plant out roots of *Marvel of Peru*, *Carnations*, etc., pot off directly; shade for a day or two. *Pink* and *Pansy* beds must have the surface stirred, and an inch of fresh soil spread over. If *Tulips*, *Hyacinths*, *Ranunculus*, or *Anemones* be affected by frost, early in the morning sprinkle cold water over them. Let the covering be over the *Tulips*, but open at the side. A shower of rain every few days will be beneficial; if such occur, roll up the covering. Secure all the flower-stems of *Tulips* or *Hyacinths*, so that the tall ones do not get broken by strong winds. Twist together two or three pieces of green worsted, and place a nice green stick at each end of the row; to one secure the worsted, then put it round the stalk of the first flower, and tie in a loop, carrying it on through the row, and secure the other end to the stick. The flower-stems are thus kept safe, at equal distances, and as they rise, draw up the sticks or worsted at each end in proportion through the season. Stir the surface of the bed, and protect from hail-storms. Bud *China* and *Tea Roses* as soon as the bark will rise. If early *Roses* are attacked by insects, sprinkle with sulphur and tobacco-dust. *Pansies*, in pots, give manure-water twice a week; plant others in beds for late bloom. *Verbenas*, stop and train, and give manure-water twice a week; strike cuttings. Prick out Annuals, as *China Asters*, *Stocks*, etc., in a warm situation to strengthen, prior to final planting for bloom. *Ranunculus*, let the soil be pressed firm about the neck of the plants, add an inch of fresh strong loam over the bed, and water freely between. Tall *Lobelias*, encourage by repotting, whether for beds or otherwise. *Wallflowers*, sow for next spring-blooming. Transplant runners of *Neapolitan Violets*, to be potted or planted on a bed afterwards for blooming. Cuttings of *China Roses*, put out firm in a shady border, will soon strike root. *Rose stocks*, cut back to a bud or two all shoots not required for budding on. Layer *Rhododendrons*, *Azaleas*, etc.

GREENHOUSE.—See that *Balsams*, *Salpiglossis*, *Globe Amaranthus*, *Brachycomas*, etc., are flourishing for summer ornament. Tall *Lobelias*, repot. Cuttings of the young wood of *Azaleas*, *Epacris*, *Heaths*, etc., which bloom during autumn or winter, will now strike freely. Vases and baskets of plants now get ready. *Salvias*, strike cuttings for plants to bloom in autumn or winter. *Fuchsias*, train, give manure-water occasionally. *Camellias*, water freely whilst in bloom; if over, then repot into a size larger, put them in a gentle warmth, and promote a vigorous growth of new shoots, till the flower-buds just appear.

Orange and Lemons, graft or inarch; place in a hotbed frame of gentle heat. Pelargoniums, guard against green-fly, or the flowers will soon be destroyed; fumigate two nights together, then syringe freely, using soft water; twice a week give manure-water. Plants to bloom in August and September, now stop the shoots; those now in bloom should be shaded during mid-day. *Lilium lancifolium*, encourage by repotting. Chrysanthemums, strike, pot, etc. Oleanders, encourage by a little extra heat.

STOVE.—The winter-blooming plants cut down, and as soon as new shoots appear, repot. Achimenes, repot; also Cockscombs, etc. Baskets of drooping plants occasionally dip in water. Gloxinias and Gesnerias repot, and syringe the foliage over and under twice a day. Ixoras, etc., for exhibitions, supply liberally with manure-water. Cuttings of young wood strike freely now. Gardenias, duly attend to have a succession in bloom, keeping some in frame, and remove here.

MAY.

When that the month of May
Is coming, and that I do hear the birds sing,
And that the flowers begin to spring,
Farewell my book and my devotion:
Now have I then, too, this condition,
That, of all the flowers in the mead,
Then love I most those flowers, white and red,
Such that men call daisies in our town.

CHAUCER.

FLORICULTURAL OPERATIONS.

FLOWER GARDEN.—Where there is sufficient of covering to protect beds of the usual bedding plants in case of a sudden frost, then early in the month they may be put out; otherwise wait to the middle, or even later, if there is the least apparent risk. Pay particular attention to the arrangement of colours. For producing brilliant effect in masses, use pure decided colours, such as brilliant scarlet, pure white, deep purple, bright yellow, etc. Have the contrast strikingly distinct, whether the bed be of one kind of plant, or, as is now often done, of mixed kinds. However, take care not to mix plants which are of doubtful duration in bloom, with those of a more permanent duration, remembering that the beauty of a formal flower-garden depends upon its being in all its details a perfect work of art, in which there should not be a blemish. There must be high keeping, symmetry, judicious arrangement of colours (traceable to fixed principles), or it will not form a satisfactory whole. Many persons plant their beds thinly, and in consequence they have a bare appearance through the season; we advise thick planting, both for speedy and continuous effect. Anemones and Ranunculus, water well between the rows: in dry weather using soft water. Auriculas and Polyanthus done blooming, remove to a north-east aspect, where they will not have the sun after ten o'clock a.m.; take off offsets and repot the entire stock, destroy green-fly, which often attacks them in May. Bulbs, previous to going out of bloom, see the kinds are correct, and before the foliage is destroyed and removed, mark the spot with a stick where the root is. Tender Annuals, as Asters, Stocks, Marigolds, etc., raised in pots or frames, take up, with all the soil adhering, and plant out for blooming; shade for a day or two. For late blooming sow more hardy annuals. Cuttings of China and Tea Roses strike in shady places. Tulips, Hyacinths, Ranunculus, etc., must be shaded from sun and rain whilst in bloom. The side canvas should be thin and open, like fine network, to admit a free draught of air, whilst at the same time protection is given from strong winds. Verbenas, for pot-culture, grow them in equal parts of light loam, leaf-mould, and old well-rotted manure, with a sprinkling of silver sand, and a free drainage; train, fumigate, as green-fly is troublesome now. It is best to fumigate the plants about to be put in the borders, for after planting it is awkward to do it. Pinks in beds, give liquid manure, and thin the flower-buds. Biennials, as Scabious, Canterbury Bells, Sweet Williams, etc., may be sown. Roses, destroy the fly as soon as it appears, prevent it getting ahead; smoke and gas-water are remedies. Pot off slips of Double Wallflowers, under a hand-glass, in a shady place. Trim off natural shoots from Rose stocks. If the weather be free from frost, each evening sprinkle overhead the bedding plants; it greatly contributes to their speedy re-establishment. Lobelias, the tall-growing plant out. Antirrhinums, sow a bed, or in patches; the plants will bloom beautifully from September to December, if frost holds off. Dahlias may be planted the last week in the month. *Oenothera macrocarpa* and *Missouriensis* increase readily by young shoots when three inches long. Wallflowers, to bloom

next spring, now sow seed. Pansies, pot off slips or cuttings in a shady place. Divide the roots of Neapolitan Violets, etc., and repot or plant in a bed, for next winter and spring bloom. Take off offsets of Double Rockets, and strike in a shady border.

FORCING-HOUSE AND GREENHOUSE.—Repot Balsams, Globe Amaranthus, Salpiglossis, Browallia, Brachycoma, etc., for summer ornament here. Achimenes, Gloxinias, etc., divide, repot, and promote their immediate growth, in frame or stove. Sprinkle the foliage over and under, twice a day, with soft water. Carefully examine under the foliage to see if red spider has got there; if they have, immediately give the leaves a forcible syringing underneath with strong soapsuds and sizing; this will coat them over and destroy them. Fuchsias, stop the side shoots, to have the plants well and closely formed. Cuttings of short half-ripened shoots of very many plants may now be put in; the new ones will get strong before autumn. Salvias, Cupheas, Lantanas, etc., for winter blooming, put off cuttings. The general stock of greenhouse plants may be put out the last week in the month; have a concreted floor for them, and fill up between the pots with moss; it keeps the roots cool and the foliage healthy. Vases, baskets, etc., of plants must now be prepared.

JUNE.

Now please the eye; sweet Nature's every sense,
 The air salubrious of her lofty hills,
 The cheering fragrance of her dewy vales,
 And music of her woods—no works of man
 May rival these; these all bespeak a power
 Peculiar, and exclusively her own.

FLORICULTURAL OPERATIONS.

FLOWER GARDEN.—Autumn-planted Anemones or Ranunculuses will probably be out of bloom; as foliage dies, take up the roots. Bedding plants, each evening sprinkle overhead with soft (pond) water, it greatly promotes their early establishment; now get them on to secure a full bed of bloom. If the soil be rather dry, give as much water at once as will sink as deep as the roots. Peg down firmly those requiring it now. Tulips, take the top cover off, and if the foliage of any assume a yellow appearance, take up the bulb, and any offsets which may be thus earlier than the parent bulb may be taken off, and leave the old bulb a little longer. All that are taken up should be laid to dry in a shady place, where there is a current of wind. Chrysanthemums, stop the leads of strong plants, to make them bushy. Carnations and Picotees that are early will require layering, and early Pinks must have pipings, or slips, put in a shady place. Thin close patches of Annuals, repot Lobelias in large pots, with a very rich soil; also give abundance of water afterwards; by such attention some of the scarlet class grow seven to eight feet high, with numerous side spikes. Turn into open ground out of pots, and water copiously. Shade Ranunculuses and Anemones from sun, but have free side air; water freely between the rows with soft water. Lay reed traps, pots, etc., to entrap carwigs. Biennials and perennials, sown in April or May, will be large enough to be pricked out in beds to strengthen for next year's bloom. If the buds or shoots of Roses be attacked by the fly, make a thick liquid of sizing, and bend each into it, it will coat them over and destroy them. It may be syringed off in a few days, or the rains will clear it; or smoke the trees, having a cover of cloth over each plant. Dahlias, if a foot high, stop the lead, to cause side shoots to push. Pansies, sow seed, put off cuttings in a shady place. Hyacinths etc., if foliage decays, take up bulb. Auriculas and Polyanthuses, keep in a shady place. Sow seeds of Hollyhocks.

STOVE, GREENHOUSE, ETC.—Repot Balsams, Salpiglossis, etc., for summer ornament. Achimenes, Gesnerias, and Gloxinias repot into large-sized ones, in order to have magnificent specimens. If the stock of greenhouse plants which are usually turned out of doors have not been done, do it immediately. Have them where they can be shaded during mid-day sun, but where they have free admission of air. Place them on a concrete floor, or upon a bed of coal-ashes, or gravel rolled even, and covered with gas-tar afterwards. If the plants are not shaded, but open to the sun throughout the day, let the space between the pots be filled with moss, and the outside have a neat basket-like fence to keep up the moss. This prevents the roots at the side of the pots from being injured by heat, and their growth is promoted by the moist moss. Occasionally, water must be poured over the moss. Now propagate all kinds of greenhouse plants that have a supply of young wood; do not forget it is the harvest for this operation; now struck, the plants become strongly established before winter. Early put off cuttings, or suckers, of all Chrysanthemums. Repot Azaleas, and keep in moist heat to promote early vigorous

wood. Also Camellias, be kept in higher temperature, to promote the formation of flower-buds. Cinerarias done blooming turn out into a bed in a shady place.

JULY.

The groves, the fields, the meadows, now no more
With melody resound. 'Tis silence all,
As if the lovely songsters, overwhelmed
By bounteous Nature's plenty, lay entranced
In drowsy lethargy.

FLORICULTURAL OPERATIONS.

FLOWER GARDEN, ETC.—Ranunculuses, Anemones, Hyacinthis, Tulips, etc., will now have done blooming, and the foliage be turning yellow; immediately take up the roots, and as some of the tubers are very brittle, be careful not to break any, and dry them in a shady place, having a current of air. Dahlia plants should be freely thinned, allowing three, or at most four, main stems to each plant, and cut clean away all others. Very liberal waterings should always be given after the plants begin to grow freely. A new plantation of Pansies now made will bloom well in autumn. Repot into very rich soil Chrysanthemums, and stop the leading shoot early in the month, so that the main stem is left six to eight inches high; it will cause the production of side shoots, and the plants become low and bushy. The flower-buds of Carnations and Picotees should be thinned where the number would crowd; leave one or two only. Layering also must be completed. Propagate Pinks. Seedlings of Perennials and Biennials should be picked out, or potted singly, to strengthen. Keep Auriculas and Polyanthus from mid-day sun. Double Sweet Williams may now be increased by slips or layers. All kinds of Roses, except the China, may now be budded; wet days are best for the operation. Double Rockets, Double Scarlet Lychnis, and similar plants, increase by offsets, or the stems may be cut into pieces, each just under a joint, and they readily strike root. Hollyhocks may now be increased by the stems being cut under a bud, and inserted in sandy loam, either in pots, placed in a frame and shaded, or in the open ground in a shady place, under a hand-glass, etc. Collect ripe seeds. Sow Mignonette in pots or boxes, to bloom through winter. Lemon and Orange stocks may now be budded. The Double Violets are often attacked in summer by red spiders; turn up the foliage and sprinkle it with liquid mud, sizing, or gum-water. Pansies mildewed, sprinkle with sulphur. Pinks or Verbenas are favourites with rabbits; sprinkle the plants over with soot, after making them wet, and whilst any remains, the plants are safe from them. Water the flower-beds freely in the evening, to have the beds gay. Sow Brompton and Giant Stocks, for next spring blooming. Divide Polyanthus, repot etc., also Double Primroses, Roses, bud early ones.

STOVE, GREENHOUSE, ETC.—Plants in peat soil, etc., are liable soon to dry; if watering duly be neglected a few times only, the plants, as Heaths, will certainly die soon after. Attend to securing vigorous plants of Achimenes, Gloxinias, etc. Keep the greenhouse gay with beautiful substitutes, as Balsams, Brachycoma, Rhodanthic, Leptosiphon, Salpiglossis, Thunbergias, Globe Amaranthus, Scarlet Geraniums, Fuchsias, Lobelias, Lantanas, Bouvardias, Tree Carnations, etc. Repot all greenhouse plants, whether in-doors or out, at the time you see they want it; never wait a general potting. Propagate stove and greenhouse plants, as much as possible now; the season for the successful operation will soon be over. Pelargoniums done blooming should be cut down, and water withheld, nearly for three weeks; then give a little, and gradually increase. When the new shoots are two or three inches long, repot the plants, etc. The show section of Calceolarias will now be going out of bloom; cut off the tops, and let the plants be placed where they will be shaded from the mid-day sun. Seeds, too, should now be sown, to have good plants before winter. Also of Cinerarias. Camellias, graft, inarch, etc.

AUGUST.

The just Creator condescends to write,
In beams of inextinguishable light,
His names of wisdom, power, and love,
On all that blooms below or shines above,
To catch the wand'ring notice of mankind,
And teach the world, if not perversely blind,
His gracious attributes, and prove the share
His offspring hold in his paternal care.

FLORICULTURAL OPERATIONS.

FLOWER GARDEN.—This month is the best time for propagating plants for turning out

into beds next year; they get well rotted, and, having the leads stopped, are bushy plants by winter setting in, and are well prepared to stand the effects of winter without injury; but before it is proceeded with to any material extent, it is as well that a proper arrangement should be made as to what number of plants are required in another season. Examine the effects of colours; investigate their combinations and contrasts, so as to improve and vary the arrangement another season. To keep up the interest of a garden, especially if planted on the grouping system, requires some considerable skill and forethought, to vary the scene in each succeeding year, so as to prevent the arrangement becoming monotonous. Thus, if warm colours prevail to any material extent this season, it would be as well to introduce a majority of cold colours next season, and to edge each bed of the latter with its complementary warm colour. Indeed, the system of edging beds with contrasting colours imparts a highly interesting feature, especially to such as may be distributed over the lawn without any methodical arrangements. Complete layering Carnations and Picotees; also piping Pinks; and if you have good young struck plants ready for planting out by the end of the month, have a bed prepared, and plant for next year's blooming. They get well established before winter, and bloom vigorously by next season. Have a compost of equal parts of well-rotted dung, good loam, and leaf-mould. Collect ripe Pansy-seed. Make a bed for early blooming next spring. Plant offsets of Tulips, two or three inches deep, in a bed of equal parts of fresh loam and river-sand; do it the last week of the month. Stir up the surface-soil around Dahlias, and give a few inches thick of rotten dung; just cover it with soil, water very freely, and keep the tops well thinned. Plant out Giant, Brompton, and Queen Stocks, where they are to bloom next spring. Sow seed for a later bloom. Strike cuttings of Petunias, Cupheas, Calceolarias, Heliotropes, Verbenas, Geraniums, Salvias, etc. Plant out biennials, and propagate by cuttings, slips, etc., the best perennials.

STOVE, GREENHOUSE, ETC.—This month have the houses painted, inside and outside, whitewashed, etc. Repot Pelargoniums which were cut-down plants of last month; they will have broken sufficiently at the eyes to be shaken out and disrooted, and with a sharp knife take off all straggling roots; repot them in some open soil, with two inches of drainage at the bottom of the pots, potting them into five or six-inch pots according to the quantity of roots, that is, if they were in eight-inch pots; keep them in a close frame or house till they get established, just damping them overhead with a fine rose three or four times a week; as soon as they have recovered from the shift, air may be abundantly given night and day, sheltering them from heavy rains, and keeping them clean from green-fly. Cuttings, now is the time for making a foundation for another season, that is, when the plants are cut down; continue to cut down plants as they go out of flower; sow seed too, as well as of Calceolarias, directly, to get well-rooted plants before winter: Repot Chrysanthemums into their blooming-pots, in a very rich loamy soil, with a free drainage. Have dwarf bushy plants, and give frequent waterings of liquid manure, say every third day; the others soft water. Cinerarias, pot off seedlings, and sow for later plants, also the old plants which were planted in the open shady border after blooming should now be taken up, and offsets be potted. Fuchsias, strike cuttings for next year's strong bloomers.

STOVE, ETC.—Winter-blooming plants, as Justicias, Eranthomums, etc., should now be pruned and potted, if not done last month. Also the *Achimenes picta* and *Gesneria zebrina* should be potted into pans or pots, to get them strong before winter; they are very ornamental. Gloxinias that have ceased blooming should be taken into a cool frame or greenhouse, and gradually lessen the watering, to bring the tubers to a state of rest.

SEPTEMBER.

I saw old Autumn in the misty morn
Stand shadowless like Silence, listening
To silence—for no lonely bird would sing
Into his hollow ear from woods forlorn,
Nor lowly hedge nor solitary thorn:—
Shaking his languid locks, all dewy bright
With tangled gossamer, that fell by night,
Pearling his coronet of golden corn.

FLORICULTURAL OPERATIONS.

FLOWER GARDEN, ETC.—Propagate the bedding plants immediately. Box edg'ng, this is the best time to plant it. Anemones and Ranunculuses, to bloom early plant now:

Bulbs, as Hyacinths, Crocus, Snowdrops, Aconites, Guernsey Lilies, Iris, etc., now plant in borders, etc.; alst in pots if required. Hyacinths in pots, cover six inches deep with rotten bark or leaf-mould. The layers of Carnations and Picotees should now be taken off and potted; the soil must not be rich, or the plants will be likely to grow too vigorous, and become what florists term too gross. Equal portions of year-old turfy loam and leaf-mould, with a small addition of sand mixed therein, is suitable, and having a liberal drainage, keep the compost in a rough state, not finely sifted. Pinks, beds of them may still be made; dig four inches thick of well-rotted dung into the bed a week before planting. Pansy-beds must be made for next spring bloom; pot some of the very best to be kept in a frame through winter. Verbena runners must now be potted in sixty-sized pots; they get well established before winter; have a free drainage. Annual flower-seeds, as Clarkia, Collinsia, Schizanthus, Stocks, Candytuft, Escholtzias, Godetias, Oenotheras, Larkspurs, Nemophilas, Wallflowers, Calliopsises, etc., now sown in small pots, well drained, and kept in a cool frame or cool greenhouse through winter, will be suitable for turning out into the open borders early in March, and will bloom early, before spring-sown ones do. The same kinds of seeds may be sown towards the middle of the month in the open borders; they generally survive the winter, and bloom early and vigorously. Ranunculus, if tubers of the late bloom are allowed to remain now in the ground, they will be starting into growth prematurely; take up early. Cuttings of all China, Bourbon, and Tea Roses, now put in the open ground, under a hand-glass, in sandy loam, soon strike root: buds of them, too, now inserted, do well. Chinese Primroses, for winter and spring bloom, must be repotted. Dahlias, where side shoots are numerous, thin them very freely. Roses may still be budded. Dress the Banksian Roses as is done to Peach-trees, securing to the wall or trellis as many of the present season's shoots as will thinly, but sufficiently, fill up the space allotted; cut away the surplus ones. Prepare beds of the Sweet Neapolitan and Russian Violets; also provide a supply of the Tree Violet. Mignonne, in pots, etc., for winter and spring bloom, must now be sown; sow thinly, and when up, thin the plants so as to leave not more than three or four. This is better than transplanting them; they do not bear it so successfully afterwards, being stunted. Repot Chrysanthemums, and early in the month pinch off the heads of all plants not bushy, or grown too high; do not, however, stop them later than this time, or they would not push side shoots to bloom this season; if large blossoms are required, do not stop the leads, but leave one blossom-bud only to each shoot, and give liquid manure often, the flowers will be monsters in size. Such as are in open ground, cut the roots around, and pot a fortnight afterwards. Lobelias having offsets, pot them off now, to get well established before winter. Plants of herbaceous Calceolarias may now be divided, potted, etc., cuttings or slips, too, pot off; they root freely now. When the patches of Lilies, Narcissus, Crown Imperials, are too large, take them up now, divide and replant. If the sowing of seeds of biennials, as Scabious, Canterbury Bells, Brompton, Queen, or Giant Stocks, Sweet Williams, have been omitted, sow immediately. Tulip-beds, prepare. Double Primroses may be parted, also Polyanthuses.

GREENHOUSE, ETC.—Towards the end of the month, take in the stock which has been kept out of doors; if they are allowed to remain longer, the foliage often turns brown; especially remove Camellias, Ericas, Epacris, Azaleas, Acacias, Corraças, for autumn and winter blooming, immediately. Previously have the house whitewashed. (See next month's Calendar about arrangement.) Camellias may now be grafted; insert a portion of the new wood that has a bud and leaf, cut longitudinally into a corresponding-shaped cleft in the stock. The grafted plant should be plunged so as to have bottom heat, and be kept closely covered in a frame or pit or hand-glass for a month. Encourage all plants for winter blooming, whether for stove, greenhouse, or frames. Tree Carnations for winter bloom, encourage. Cuttings of nearly all plants, especially bedding ones, may yet be struck. Cinerarias, pot off singly the offsets, etc., from the plants which were turned into the open ground early in summer. Pelargoniums, pot off such as have struck root, and stop the leads of such as require to be made bushy. Sow seed of Cinerarias and Calceolarias, so that the plants may be strong before winter. See that a stock of plants is prepared for forcing for winter bloom. Tuberoses, pot. *Tropaeolum tricolorum*, and other tuberous-rooted, now pot. Sow in pots Collinsia, Nemophila, etc., to bloom early in spring, in the greenhouse, or turn out into beds.

OCTOBER.

Summer is gone, on swallows' wings,
 And Earth has buried all her flowers:
 No more the lark, the linnet sings,
 But silence sits in faded bowers.
 There is a shadow on the plain
 Of Winter, ere he comes again;
 There is in woods a solemn sound
 Of hollow warnings whisper'd round.

FLORICULTURAL OPERATIONS.

FLOWER GARDEN.—Plant Turban Ranunculuses, Alstroemerias, as Van Houtte's Collection; plant in warm border, six inches deep, and protect with dry leaves in winter. Rose-buds, until the matting of those well taken. Tigridias, take up with all soil possible; dry gradually Hollyhocks; now make new plantations of these noble flowers, and put off slips, offsets, or cuttings. Auriculas and Polyanthus, Carnations, Pinks, etc., should be placed in their winter quarters, in a dry, sunny, sheltered spot, but, at the same time, where a free circulation of air can be admitted on all proper occasions. The surface-soil must be loosened, and a slight sprinkling of fresh compost be spread over it. Any plants out in the open beds, as Lobelias, should be taken up and potted, for winter preservation, in pits or frames. Chrysanthemums grown in the open ground, and required for blooming in-doors, should be taken up as entire as possible, and be potted with due care; give liberally of manure-water. All tender kinds of plants, as Scarlet Geraniums, Verbenas, requiring winter protection, should be housed immediately. All plants like light; place them as near to the glass as convenience will allow. Tender Roses, grown out of doors, should have protection over the roots, etc., or be taken up and housed. Prepare the Tulip-beds; have the side six inches higher than the path, and the middle of the bed three or four inches higher than the sides.

DAHLIAS.—Let the crown of the roots be covered with a few inches deep of soil around the stems. Beds of Pansies may be made. Shrubs of all kinds may be planted. Roses now planted soon push new roots, and become well established before winter; the soil being somewhat warm, excites the roots immediately.

SHRUBS, ETC., FORCING FOR WINTER BLOOM.—Such as are to bloom early should be gradually prepared, potted immediately, if required, and by the middle of the month introduce such as are desired to bloom by Christmas into the house or pit. The kinds which are well deserving such attention are Roses, Honeysuckles, Jasmines, Poinsettias, Azaleas, Kalmias, Persian Lilacs, Andromedas, Tree Carnations, Pinks (of which Anne Bolcyn is the best), Rhododendrons, Rhodoras, Deutzias, Ribes, *Spiraea prunifolia*, Mezereums, Gardenias, Cupheas, Heliotropes (the new blue is fine), Scarlet Pelargoniums, Cactuses, Branthemums, Justicias, Salvias, Gesnerias, Correas, Chinese Primroses, Aconites, Mignonette, Primroses, Cinerarias, Stocks, Persian Iris, Crocuses, Cyclamens, Sweet Violets, Hyacinths, Lilies of the Valley, etc. Plant Evergreen Shrubs, etc., as soon as possible in the open ground. Seeds of many annuals, as Clarkia, Gillia, Collinsia, etc., may now be sown in the border, and others in pots, in order to bloom early next spring. Brachycoma, *Schizanthus retusus* and *Hookeri*, Rhodanthe, and Salpiglossis, seeds now sown, plants potted off when strong enough, will bloom vigorously next spring. Plant out seedling perennials and biennials, where they are to bloom next year. Divide hardy herbaceous plants where required; they will soon strike fresh root, the earth now being warmer than in spring, after the winter's cold. Pot Hyacinths, Tulips, etc., for forcing in the first week, and when potted, place them side by side, where worms cannot creep in the holes, and cover the whole, six inches deep, with old spent tan, or old, rotten, dry leaf-mould. The situation should be a warm one, but open to the sun, rain, etc. In this position let them remain till the flower-spike is clearly seen on examination; then remove them, to be forwarded in-doors. In this way they bloom vigorously. Turban Ranunculus, Anemones, Gladiolus, Iris, Snowdrops, Crocuses, Lilies, etc., now plant, and protect the two former in winter. The White Lily, Orange Lily, and Tiger Lily, already been a year in the ground, should not be disturbed; every third or fourth year is soon enough; if disturbed every year, they are always weakly. Take offsets from their sides, and plant them now; they will make fine specimens in two years, when the old patches may be taken up and divided. Take care to have the Dahlias carefully numbered before the frost comes; draw earth around the stem, to save the crown of eyes from injury by frost. Collect seed. When the roots are taken up, do

not twist the tubers ; do it on a dry day. Take up Sweet Violets, and plant them on a gentle hot bed, for winter bloom. Tree Violets take in-doors. All tender bedding plants must now be got in, such as Verbenas ; let the tops be kept dry, and water well when first potted, or put into boxes ; afterwards give but little, till they strike root afresh. Place Auriculas, Polyanthus, etc., in winter quarters. Pot off layers of Carnations, Picotees, and Pinks.

GREENHOUSE, ETC.—The stock of plants must be housed immediately. Care must be taken so that one plant may receive something like its proper treatment without interfering materially with the well-being of its neighbours ; and the tender ones must be placed in the best part, for protection from cold wind, as Polygalas, Pimelias, Leschenaultias, Apelexis, Boronias, Gompholobiums, and Diosmas are injured by being placed where there is a current of wind. Let each plant have all the space possible ; and the robust, large-leaved kinds, and the very slender delicate sorts, should be kept as separate as can be arranged, so as to allow a due circulation of air. Be careful that the pots, etc., be perfectly clean before arranged for their winter situation. Repot and fumigate Cinerarias. Let Camellias which are to bloom early be placed in a warmer situation ; also any Chinese or Indian Azaleas ; so that they be gradually advancing. In watering the stock of plants, let it be done in the early part of the day, so that any excess may be dried up before evening, and damp be avoided, otherwise mouldiness will ensue. Calceolarias strike root freely ; now pot off seedlings to bloom next season. Repot Chinese Primroses. Pelargoniums headed down some weeks back, now have pushed shoots an inch or two long ; these should be thinned properly. The plants must be repotted, in order to have the roots well established before winter. Shake off the soil and shorten some of the long roots, so that young fibres be promoted, which is essential to the vigour of next bloom. Have a free drainage in the pots. An excellent compost for them is turfy loam, well chopped up, with an equal portion of sandy peat and well-rotted leaf-mould, and half the quantity of well-rotted dung. Give air to the plants in the daytime, and be careful not to give over much water at the roots ; for if saturated they will be injured. Young struck plants should have the tops pinched off, to cause the production of side shoots, to render them bushy for next season. Repot some of the Scarlet Geraniums (so called), to bloom during the autumn and winter ; they are charming ornaments. So with the Tree Carnations, of which there now are many very beautiful distinct varieties. Lilliums, let those in pots be gradually dried by withholding water.

STOVE.—Achimenes, Gloxinias, Gesnerias, etc., done blooming, should have little water given, and soon after be placed in a dry situation, just free from frost, till required for re-potting next February. Take care to have plants in preparation for winter bloom, as *Gesneria zebrina*, *Achimenes picta*, etc.

NOVEMBER.

Where are the flowers, the young fair flowers, that lately sprung and stood
In brighter light and softer airs,—a beauteous sisterhood ?
Alas ! they all are in their graves ; the gentle race of flowers
Are lying in their lowly beds, with the fair and good of ours.
The rain is falling where they lie ; but the cold November rain
Calls not from out the gloomy earth the lovely ones again.

FLORICULTURAL OPERATIONS.

FLOWER GARDEN.—Directly finish planting Bulbs, also Ranunculuses and Anemones ; a little sand round each will assist in preserving them from wet. Also plant out Brompton or Queen Stocks, where they may be protected in winter, and preserved for planting out in spring. Tubers of *Salvia patens* should be kept dry. Plants of spring flowers, as Hepaticas, Primroses, Polyanthus, Winter Aconites, Wallflowers, Bulbs, etc., should now be planted near the dwelling-house. This is the best month for planting all kinds of hardy Roses. They may also be pruned, except the China section, which should be left till the beginning of March. In pruning, have the branches quite open, and cut the present year's shoots back to about two buds ; this severe cutting is essential, to have fine Roses. All Roses must have a very rich soil ; and old rotten cow-dung is the best, mixed with leaf-mould and strong loam (equal parts), and a dry subsoil. When the heads of Roses are too large, cut the entire back to within a few inches of their origin, and begin anew. Fuchsias flourish, and are highly ornamental, grown in the open ground. The shoots must not be cut back till spring ; they may be tied up neatly, and will not appear unsightly. Cover around them with a few inches thick of dry leaves, spreading a little soil over them, to keep them at the place. This is one of the best coverings for the

roots of tender plants. The leaves often keep dry throughout the winter, and frost does not penetrate beneath. In the first week plant the select Tulips. The readiest and most regular way is to plant them on the surface of the bed unfilled to within four inches of the destined surface. Seven strings are then stretched lengthways at equal distances, and secured by nails at each end of the bed; when the bulbs are planted, a short line crosses these, and a bulb is placed at each section; the small line is then removed the requisite distance, and another row put in. When the bed is planted, the strings are removed, and four inches of soil placed over the roots very carefully, so that none are displaced. They are known as first, second, third, and centre row Tulips, referring to the height they usually grow; therefore the two outer rows must be alike in height, and the two seconds, also the two thirds, with the centre (or fourth) row the tallest. Hyacinths in glasses must have rain-water, or river or pond water. A small portion of guano put into the water promotes the growth and vigour of the plant. Only allow the bulb just to touch the water in the glass; place them in total darkness, and change the water solution about once in ten days. In a few weeks, the roots having advanced considerably, the glasses may be removed to a window, or other light situation, to bloom. This process secures the roots in advance of the leaves, and, having that, the latter will grow afterwards; but when leaves are in advance of roots, during the first few weeks the flowers are feeble and small. Dahlia roots take up in dry weather; be careful not to twist the tubers, nor cut the tops off close now, but leave a portion of the side stems, to the part of the main stem, and, in a few weeks after, when evaporation has sufficiently expended itself, then cut it lower down. Take care to get the main stem ripe, solid, and dry. All pit plants must be kept somewhat dry, and have all the air that can be given with safety from frost and rain. Plants kept in rooms must be placed out-doors at all suitable times, to prevent them drawing up. Wash them often overhead, to free them from dust, as dust chokes the pores of the leaves and stems. Decayed leaves on plants are unsightly, and produce a damp atmosphere; let them be removed as soon as they turn yellow. Stir the surface of Pink and Fanny beds; prick sticks amongst the plants, to preserve them from being twisted off by wind. Let Carnations, Picotees, Auriculas, and Polyanthus have all proper air possible. Verbenas, place near glass, in a dry frame or pit; guard against green-fly and mildew. In the protection of tender plants out-doors, the principles demanding attention are few and simple. A comparative degree of dryness is the first great essential, whether in the atmosphere or the soil. In a frame or pit, this amount of dryness cannot be guaranteed without motion in the air; and this, of course, in the absence of fire-heat, must be accomplished by a very free ventilation at every fitting opportunity, remembering that a small amount of frost is, in general, less prejudicial than an accumulation of damp, which will rapidly tend to a kind of mortification in the system of the plant. The same atmospheric conditions are to be obtained out of doors, as far as attention can secure them; thus, half-hardy plants against trellises or detached, if covered with a mat and stuffed closely with hay inside, will be in danger of perishing of what may be termed suffocation; the same specimen will always run through a long winter better with the mat alone, more especially if the collar is well protected by some dry and porous material, and, above all, the root well top-dressed with sawdust or ashes, or perhaps the two blended. As to comparative dryness of the soil, that must be accomplished principally by the most perfect drainage; this is, indeed, the great desideratum with plants of tender habits; without it other appliances are seldom satisfactory. Mounds of new sawdust or dried leaves, raised around the stem, with a considerable body over the soil as far as the root ranges, will be found of immense benefit, as retaining the ground heat. Hollyhocks, finish planting out, or potting for winter protection.

GREENHOUSE, ETC.—Give all air possible, so as to exclude frost, fog, or rain. Give water to plants sparingly, and do it early in the morning, so that damp may dry up before evening. All plants that have been taken up out of beds, as Scarlet Geraniums, etc., must have little water till they strike root afresh; if this is not strictly attended to, the plants will soon perish. Fumigate, if green-fly appear. Apply sulphur if mildew, on a warm flue, or warmed iron plate. Seeding Calceolarias, repot, and place in a cool but dry frame; so treat Cinerarias also.

FORCING-HOUSE.—In forcing plants for winter bloom, such as half-hardy and hardy shrubs, a gradual increase of temperature must be given; at first from 55° to 60°, and ultimately from 70° to 75°. The following succeed well for this purpose: Aconites, Crocus, Violets, Mignonette, Stocks, Tulips, Cyclamens, Narcissus, Lily of the Valley, Hepaticas, Primroses, China Primroses, Persian Lilacs, Iris, Tree Carnations, Pinks, Hyacinths, Heliotropes, Jasmines, Scarlet Geraniums, Salvias, Gardenias, Roses, Rhododas, Ribes, Mezereum, Correas, Coronilla, Justicias, etc.

DECEMBER.

The melancholy days are come, the saddest of the year,
 Of wailing winds, and naked woods, and meadows brown and sere.
 Heaped in the hollow of the grove, the withered leaves lie dead;
 They rustle to the eddying gust and to the rabbits' tread.
 The robin and the wren are flown, and from the shrub the jay,
 And from the wood-top calls the crow through all the gloomy day.

FLORICULTURAL OPERATIONS.

FLOWER GARDEN, ETC.—Roses, give a good supply of well-rotted manure, taking off four or six inches of soil, put on the manure, and then cover with a couple of inches of earth. Verbenas, keep them in a dry atmosphere, and have the soil only just moist; guard against green-fly and mildew at the first appearance; examine the under side of the leaves for green-fly. Dahlia roots examine to see they are not decaying; and the last week in the month put in roots for early cuttings. Pink and Pansy beds protect from cold winds by sticking around the sides branches of yew, fir, or some similar guard to break the force. It is very desirable, and a valuable acquisition, now to have the flower-beds, especially within sight of the dwelling-house, as lively in appearance as possible. During winter the Chrysanthemums, in varieties, supply a profusion of beauty, and, if the frost be not severe, will be highly ornamental. If they are grown against a wall, etc., a covering at night is easily supplied. The succession to Chrysanthemums must be made up of evergreen shrubs, previously grown in pots; such as *Laurustinus*, *Aucuba*, *Mahonia aquifolia*, with its shiny leaves and profusion of large blue berries, are very pretty. Hollies, if they have their brilliant-coloured fruit, are very ornamental; the yellow-berried contrast nicely therewith. *Cotoneaster microphylla* is also very ornamental, with its vast profusion of red berries. Box, *Rhododendrons*, *Phillyreas*, Dwarf Cedars, *Arbor Vitæ*, and *Arbutus*, with its chaste pendulous racemes of flowers, are very neat. These and other similar plants give a cheerful appearance to the beds. We have seen beds stuck over closely with small branches of Laurel, Box, Holly, etc., appear well during the entire winter. In flowers there are the beautiful single *Anemones*, Double Daisies, in fine variety, *Gentians*, *Aconites*, *Hepaticas*, Christmas Rose, *Anemone japonica*, etc., which bloom early in the winter and spring; all are easy of culture, and very ornamental. Later on come in border *Auriculas* and *Polyanthuses*. Newly-planted trees or shrubs, secure from being loosened by the wind, or they will not strike root. Carnations, *Picotees*, and similar plants in pots, give all air in mild weather, protect from frost and excess of wet. *Mignonette*, *Stocks*, etc., in pots, for early bloom in spring, water but sparingly; guard against rotting off. Finish planting *Roses*, take off and plant out suckers, etc. Protect beds of *Hyacinths*, *Tulips*, *Ranunculus*, and *Anemones* from frost and excess of rain, using hoops and painted canvas covers. Sweet Violets, secure an abundant supply of these fragrant flowers throughout winter and spring. Encourage all spring ornaments, as *Crocuses* in all their varieties. The dwarf *Menziesia*, or Irish Heath, both purple and white, are now pretty, and the new beautiful tribe of Double Daisies merit a place in every garden, blooming nearly all the year. Never be sparing of the gay winter or spring flowers. During hard frost, fresh soil, dung, etc., should be supplied to all flower-beds. The hardy dwarf, bushy, and profuse flowering *Erica* is a charming ornament from February to the end of April.

STOVE, FORCING-PIT, ETC.—The following Stove plants bloom well now:—*Eranthemum pulchellum*, *Gesneria zebrina*, *Justicia speciosa*, *Cestrum aurantiacum*, *Poinsettia pulcherrima*, *Begonia fuchsoides*. The class of plants best adapted for forcing, in order to bloom through winter and spring, are recorded in the November Calendar. Also start a few *Gloxinias* and *Gesnerias* for early spring bloom.

GREENHOUSE.—Prevent damp, give all the mild air possible; do not crowd the plants, stir the surface-soil frequently, and water the plants in a morning. In arranging the stock, keep the large leaved together; the medium sized, and the small too; they succeed best thus placed. *Fuchsias*, keep them at rest and nearly dry. *Pelargoniums*, stop every shoot of those plants to bloom in June, or a straggling head of bloom will be the consequence. *Cinerarias*, required for exhibition, must have all suckers removed, and be reotted, to prevent roots becoming matted, but keep them in a pit-frame to have them robust, and so as to be in bloom at the proper time, fumigate often.

TREATMENT OF THE VINE IN THE GREENHOUSE.

HOWEVER skilful the cultivator of the Vine may be as it respects his pruning and dressing thereof, satisfactory success in the production of fruit will not be realized unless his plants be both healthy and sufficiently vigorous, and such can only be obtained but by their having a properly constructed border of suitable compost to grow in. Some of our readers who cultivate the Vine under glass are already so advantaged; but there are others who are not so circumstanced, and though they may not be able to carry out fully the operations we suggest, to obtain similar benefits, we shall here, for their advantage, give particulars how a suitable border for the growth of the Vine in the greenhouse should be constructed. Where new borders are about to be made, they can be formed on the principle we shall describe; and where Vines are already established, and some improvement in the border is required, though the routine cannot be carried out to the full extent, as near an approximation to it as can be, without injury to the existing Vines, can be pursued.

When a greenhouse is properly constructed for the growth of the Vine, it ought always to have a front wall, built so high that the plate upon the wall may be two feet higher than the general level of the soil in front. This is necessary, in order to let the border have a slope from the house to the front.

The border ought to be at least eighteen feet broad, three feet deep at the back part, and two feet at the front. Particular attention must always be paid to the formation of the substratum, so that the border be *well drained*. Let the substratum have an inclination of at least one foot from the house to the front of the border. A drain must be made close along the front of the building, and another at the front of the border to run parallel with the house. Other cross drains must also be made, the tops of these drains (which must be open stone drains, i. e., stones placed in edgeways) must be about six inches above the level of the substratum. If the bottom of the border be naturally dry, after the drains are made, nothing more is required than to spread about three inches thick of small-sized gravel over the whole of it, which must be rolled to an even surface, then finer over it, and a covering of gas-tar to bind it together, and when rather dry sprinkle it over thinly with sand, and draw the roller over it. When dry, lay upon the entire concrete floor four to six inches thick of broken stones or brickbats, also, over these, put a thin covering of twigs, to prevent the soil being scattered among the stones, and closing up the crevices. If the bottom of the border be *wet*, in addition to the concrete bottom, let about six inches thick of broken stones, brick bats, etc., be spread over the whole substratum. By laying over the concrete bottom several inches of stones, etc., it admits water to filter down to the surface of the firm substratum and to run down to the drains; but when it is concreted and without these brickbats, etc., the water runs along the face of it, and a few inches of the compost next to it becomes quite wet and sodden, which causes any roots that enter it to decay. The concrete floor prevents the descending roots pushing into an injurious subsoil; and in low, damp situations and in wet soils it prevents damp below rising upwards, and rendering the borders too wet. After this is completed so that the overplus water can be conveyed entirely away from the border, the compost for the Vines must be laid in the space allotted for it. The sort of compost in which the Vine flourishes the best is prepared as follows:—One-half of good gritty loam soil, the thin top spit of a *pasture field*, which has not been lately cultivated for corn, or of a common, let the turf remain upon it; one-quarter of well-rotted manure from old hotbeds, and one-quarter composed of lime rubbish, ground bones, old spent bark, and pigeon or fowls' dung. Let there be equal quantities of lime rubbish, bones, and bark, and about half the proportion of pigeon or fowls' dung. The carcases of animals, cut in large pieces and buried in the soil, promotes the vigour of the vines.

The soil must be procured twelve months before the time it is wanted for use, and must be turned over and chopped in pieces once or twice, so that the turf may become well rotted. In turning over the soil, always do it on a dry day. The manure and the soil must be mixed well together previous to laying it in the excavation. The compost ought to be laid in the place allotted for it, three or four months before the Vines are to be planted in it, so that it may not settle after planting. No part of the Vine should be exposed at the *outside* of the house, as the Vines must be introduced through a sloping hole in the wall, and to enter the house close to the under side of the plate.

The best time to plant the Vines is early in spring. Persons having the convenience of raising Vines themselves may adopt the practice, viz., to raise them from single eyes; this is done by cutting in a *straight* direction through the shoot, about half an inch

below a bud, and then cutting in a *sloping* direction about one inch above the bud; these planted in good rich soil early in March, fixed firm in the earth, and placed so deep as to cover the eye, then introduced into a stove, or hotbed frame, until they have pushed, will make strong plants the first year. When there is not the convenience of raising plants, Vines of one year old, propagated from single eyes, may be obtained at most of the public nurseries. At the end of February, Vines which are one year old must be headed down to one bud, and be introduced into a forcing stove. When they have pushed shoots about three feet in length, let them be removed into the greenhouse, that they may not receive a check by their removal for final planting; after two or three weeks they may be planted. In performing this, let the holes in the soil be made about three feet wide and about twelve inches deep. In these put a portion of fine light compost, so as to raise it to the height at which the Vines are to be placed. The Vine must have all the leaves dressed off which are upon that part of the stem which will be *outside* the house. When the plant is turned out of its pot, it will probably be found that the roots are *matted closely together* round the outer side of the ball of earth. If so, let these matted roots be loosened and spread outwards, so that they can, after being planted, push directly forward into the border. In placing the Vine in the hole, let the ball of earth be laid upon its *side*, so that the buds upon the stem are in the direction afterwards required for making an incision as hereafter described. The ball must be placed so far from the front wall, that five eyes of the new shoot lying horizontally upon the earth in the hole may be at the outside, the top of the Vine being introduced into the house through the opening in the wall. Let the Vine thus placed, be supported by a portion of fine compost applied at the sides of the ball, so that it will be secured in the place in which it is to remain. The Vine must be placed so deep in the hole that the upper side of the ball be six inches below the surface of the border, allowing two or three inches for settling. When it is thus placed, and whilst the stem is bare, let a slit be made below each bud, beginning about an inch from them, and making it up to the buds; the buds which are to be treated thus, are those three that are at the low side of the stem, but the two remaining ones at the upper side must not be meddled with. In making the slit, cut into the shoot about one-third of its thickness. When the three tongues are cut, let a little of the soil be put between them and the other parts of the wood, so that the tongue will form an angle of 45 degrees with the stem. After this is done, the whole of the Vine outside the house may be covered up with fine compost as before described. In making the tongues, be very careful that the Vines are not broken, as they are very brittle. Water them when planted, and lay mulch over to the extent of the roots. The advantage of slitting the stem in the manner described is, that a great number of roots will be produced from each tongue, which, consequently, increase the number of feeders to the plant, and will contribute in a great measure to promote the vigour of the Vine. We have had Vines that made shoots the first season three to four inches in circumference.

As the Vines advance in growth, be careful to secure each lead to the trellis, that it be not broken, as it ought not to be stopped until it has reached the top of the house. When it has got to that extent, train it horizontally for about three feet, when it must be cut back so far, as to leave four or five buds upon that part trained horizontally; this will strengthen the upright shoot considerably. If a shoot pushes again, let it grow a foot or two, and then be cut back to within two or three joints of where it was stopped the preceding time. All *laterals* that are produced upon the Vine must be taken off when they have pushed about six inches in length. In doing this, pull them off backward from the bud. The reason for taking away the laterals is, that the natural fruit-bearing buds are frequently injured by their being left and pinched back once or twice during summer, as is the practice of many persons; so much so sometimes as to force the natural buds in a wrong direction, or even to destroy them by growing over. The reason of laterals being retained and pinched back as alluded to is, to prevent the natural fruit buds from prematurely pushing; but if the leading shoot be kept *growing forward* as directed, the buds will not either prematurely break or be injured, on the contrary will be a great deal bolder, and produce much finer fruit the ensuing year.

In pruning and training Vines, we have practised two methods. Under the *first*, the Vine produces its fruit principally upon *spurs*; but under the second, upon *long shoots* of the year-old wood. In pursuing the first method, there is a much greater number of bunches upon the Vine than in the latter; but under the second method the bunches of fruit are considerably larger. The second method is the best to adopt, when Vines are trained in a house where there are long rafters and rather narrow sashes, so that as much light as possible be allowed for the collection of greenhouse plants. But when the rafters are rather short and the sashes wide, the mode of *spurring* is the most

proper to be practised, because they can be allowed to spread wider on each side of the rafters, and when spurred they require a greater breadth than on the other plan. Never permit them to spread over all the roof, although they be spurred; but always leave a good space up the middle of each light, so that the sun will be admitted in order to bring the fruit to perfection, and sufficient light for the collection of plants.

Our first remarks are upon those Vines which are *spurred*. The method of treating the Vine during the first summer which is already laid down, is alike applicable to both the modes of treatment. We therefore commence with the first winter pruning, which must be done in November, providing the wood be ripe. Let it be remembered that late pruning of the Vine is injurious. If not done early in autumn, do not defer later than *six weeks* previous to the supposed time of the sap beginning to move.

First Year. Winter Pruning.—In pruning the shoots always cut about one inch above a bud, and so as to slope in the same direction in which the bud grows; the length at which the shoots are to be left must be regulated according to their strength. If the shoots are as much as one inch and a half or upwards in circumference, let them be cut back, so as to leave four feet in length of the new wood inside the house. But if the shoots are much less in circumference, let them be pruned down to two buds. As soon as the Vines are pruned, let those that are long enough to admit of it be loosened from the rafters, and be tied along the front of the house, as near to the bottom of the sashes as possible.

The border outside the house (as far as it is judged the roots of the Vine extend) must be covered six inches deep with rotted tanner's bark or littery manure; but previously to laying this upon the border, loosen the soil to the depth of two or three inches, but not more. The mulch thus laid must remain upon the border until the latter end of May, when it may be removed. The advantage of having recourse to this practice is, that those roots which run near the surface are protected and preserved from injury by frost. And when the Vines begin to push next spring, it is of great importance, in order that the roots may be as much as possible in a natural proportion of temperature with that part of the Vine inside the house. No fire must afterwards be admitted into the front flue, except just sufficient to keep out frost from the plants. The best method of preserving Vines through winter in future, and preventing them pushing too soon in spring, is to have them loosened from the trellis, brought down and tied together under the sashes at the inside front of the house, lengthways of it. When tied, a wooden case should be fixed under them, so as to exclude them from the warm air of the house; this will require a wood bottom and upper edge, to fit close to the sash bars. In order, then, to admit the cold air to the Vines, a pane or two of glass may be taken out. If towards spring it is desirable to retard them longer, place a piece of felt upon the glass over the Vines, so that the influence of the sun upon them may be prevented. Sometimes a provision is made in constructing the house by openings under the front cross-beam, or by having a part of the sash formed so as to take about a foot broad of each away, then to draw the branches through and secure them outside the house. When they are thus placed, it is essential that they be secured from *wet*, or the buds will be liable to injury from frost, etc.

The time of beginning to push the Vines the following spring must be regulated by the period at which it is desired to have ripe fruit, calculating sixteen weeks from the commencement of forcing to the ripening of the fruit; but the nearer it is to the period when the Vines *naturally* begin to vegetate, the more certain is an abundance of fine fruit to be obtained. If the border is not in a due moist condition, let it have a good watering with drainings from the dunghill, it will very much promote the shoots pushing well. This attention to watering must be practised occasionally, so as to keep the borders in a moist (but not *wet*) condition, until the fruit is half swelled, when it may be entirely given up for that season. If manure-water cannot always be had for this purpose, soft pond-water may be used instead. As soon after as it is remarked that the buds have begun to swell, let a little fire-heat be introduced, so as to raise the thermometer to 60 degrees. From the time of commencing the fire-heat until the bunches of fruit can be distinctly seen (which will generally be the case by the time the shoots are an inch or little more in length), the Vines must be sprinkled with water of the same temperature as that in which the house is kept. The sprinkling must be performed every day at morning, noon, and night. When done in the evening, let it be about half an hour before the sun leaves the house. The flue must also be regularly watered every morning and evening. As soon as all the buds upon the Vines have broken, let the Vines be tied up the rafters of the house, and the heat be then increased to 65 degrees. After the Vines are tied up the rafters as directed, they must only be sprinkled twice a week until the bunches come into bloom, when it must be entirely given up, but be resumed after the berries are set, by sprinkling twice a week until the berries are about half the size they will attain to, when it must be given up, otherwise they would be affected by mildew.

It will generally be the case that two or more bunches of fruit will show from a bud, but only one must be permitted to remain. Whatever fruit is shown upon the uppermost shoot must be pinched off, unless the Vine be very vigorous, in which case it may be left, as in the other shoots. In making choice of a bunch to remain, the lowest one is generally the best. When the shoots upon which fruit is retained have pushed forth so that two joints can be distinctly seen above the bunch, the top of the shoot must be pinched off just above the second joint, in order to divert the course of the sap into the bunch of fruit; if a shoot should push again from the top of the one thus stopped, let it be pinched back to its origin when it has got about six or eight inches long. After this second stopping it will rarely be necessary to be repeated, the fruit being then so increased in size as to require a great portion of support. Great care must be taken that the leaf (which is at the joint from which the bunch is produced) is not damaged, for if it be, the fruit will be injured. The necessity of stopping the shoot two joints above the bunch is, that the sap, when required, may have a channel to expend itself without causing any of the buds below the bunch of fruit to break this season, which would frequently be the case in vigorous Vines if the shoot was stopped at the bunch, which is the practice of some persons; but by stopping it as directed, a mean is provided to prevent the premature breaking of the buds below the fruit, whilst the part of the shoot retained above the bunch is not an encumbrance productive of any injury to the Vine or fruit whatever. When the bunches come into bloom the temperature of the house must be increased a little by keeping the house closed longer during sun, but admitting as great a quantity of air in mild days as possible, so as to regulate the house as described. This temperature of heat must be afterwards kept until the middle of June, when fire-heat may be given up, except a little occasionally, to dry up any damp. At this period the general collection of greenhouse plants will have been removed, and more heat may be allowed to the Grape. The thinning of the berries must take place as early as possible, doing it when they are the size of small garden peas. In doing this, great care must be taken that the berries which are to remain, and the stalks which support them, are not injured by the scissors with which the thinning is performed. A regular distribution of berries in every part of the bunch must be left. The distance at which they are permitted to remain must be varied according to the sort of Grape; those sorts which produce small berries must be left the rankest. Those bunches which have shoulders (such as the Black Hamburgh and others) must have them supported to the Vine or trellis, previous to thinning, by small strands of matting. This gives a great advantage to the swelling of the berries, and secures them from getting mouldy. All laterals, shoots, or claspers which are produced must be taken away, leaving about one inch of each *clasper*, but taking the *laterals* entirely away. The uppermost shoot must be trained up to the top of the house and then in an horizontal direction for a few feet, it must then be stopped agreeably to the instructions given for the first year. Those Vines which were cut down to two buds at the winter pruning must be regulated in the following manner. If both the buds pushed a strong shoot each, let the uppermost be taken clean away and the other be trained up the house, and afterwards treated as directed for young Vines the first year after being planted. At the following winter pruning the Vine must be shortened back to four feet, and in its future treatment be regulated agreeably to directions given for the other Vines which were allowed to remain four feet long at the first winter pruning.

Second Year. Winter Pruning.—When the Vines are pruned at this time, the lateral shoots, which will hereafter be denominated spurs, must be cut down to two buds, as Fig. 1, *a, a, a*. By shortening those spurs so much as directed, the Vine is kept in a vigorous state and the bunches of fruit will be considerably larger than if they were left longer. But it is necessary to leave two buds upon each spur, for it sometimes happens that one of the buds will not show fruit well, or may be damaged, but by reserving two, a supply is more certain. The leading shoot of the Vine must be pruned back so as to leave five or six feet in length of the last summer's wood. This must be regulated according to the length of the rafters. If the Vines are to be trained to the length of fourteen feet, it must now be pruned to five feet, and the year following to five feet more, when it will be at its desired extent. If the extent at which the Vines are to be trained be as much as seventeen or eighteen feet, let the leading shoot be pruned so that it may have a regular proportion left each year, and so as to reach one foot from the top of the house at the fourth winter pruning; at which length the Vine must in future be allowed to bear fruit. Any loose bark which there may be upon the Vine at winter pruning must be peeled off. After this is done the Vines must be brought down to an horizontal position as before. The bringing down of the Vines to this direction must be attended to so long as they will admit of it, as it greatly assists the regular breaking of all the buds at spring. The directions given for forcing are those proper to be pursued in every succeeding year.

When the buds upon the spurs, *a, a, a*, have broken, and show good bunches of fruit, one only must be left to each shoot. If the uppermost bud does not show fruit, let it be taken entirely away; but if the uppermost bud shows fruit and the lowest one does not, both of them must be retained. The directions already given for stopping the shoots, taking away claspers, laterals, etc., must be attended to in every succeeding year.

Third Year. Winter Pruning.—Those spurs which had two shoots retained upon each during the last summer, must now have only the lowest retained, and each spur must be pruned off, as Fig. 2, *a, a*. The shoot, *b*, must also be cut down to two buds. This attention to keep each spur supplied with bearing wood as *near to the main stem* of the Vine as possible, must in every future pruning be strictly pursued. The leading shoot must now be cut off agreeably to previous instructions.

When the Vine comes to bear upon spurs quite to the top of the house, the leading shoot must be stopped in summer, and also pruned back in winter, in the same manner as is practised upon the spurs. When the top of the house becomes crowded, a portion must be taken from the end of the Vine by cutting away two or three feet of the old wood, and replacing it by a new shoot. When the Vines have been under this mode of training and pruning for ten or twelve years, the spurs will generally be rugged and longer than would be slightly or beneficial to the Vines, a renewal of wood will then be required. But this may in many cases be retarded for several years, for it will very frequently happen that upon the oldest wood of the spurs several buds will break, as well as the two buds reserved upon the shoot of last year's wood. When shoots are so produced upon the old wood, let all be rubbed off to one good strong one, when they are about two inches in length. The one retained must be allowed to grow to fourteen or sixteen inches in length, when it must be stopped, and afterwards kept at that length. When such spurs as are furnished with a shoot as described, are pruned at the following winter, all that part of each spur above where the new shoot arises must be cut clean away, and the new shoot be pruned to two buds, as directed for the other spurs. However, when it is found necessary to have an entire new head, this is best effected by wholly cutting down the Vine, so as only to leave two or three buds inside the house. There are generally plenty of such buds situated upon the old wood at the bottom of the Vine. This practice is far preferable to that of training up a shoot from the bottom a year or two previous to the time it is designed to cut down the Vine; for in that case the shoot cannot always attain sufficient strength to enable it to produce fruit as it ought to do for the first year or two after heading down, by reason of having to support spurs and fruit at the same time the shoot is coming on, and upon which you are to depend for a supply. But when the Vine is cut entirely down, it will make a vigorous shoot which will bear abundantly the second year. In pruning the shoot produced by heading down, let it be cut at the first winter pruning, so as to leave it six or seven feet long; and at the second winter pruning in proportion to its strength: the future treatment of them must be as directed for young Vines.

The other mode of treating Vines, viz., the long shoot system, is as follows:—The Vines are planted in the manner already described, and the treatment of them for the first summer is in *every respect* as for Vines trained to bear upon spurs, also placing them in a horizontal position along the front of the house during winter, etc.

First Year.—Winter Pruning.—It will occasionally happen that some of the Vines will grow a great deal more vigorously than others. In pruning them at this time they must be treated according to their strength. If the shoots be so strong as to be two inches in circumference let them be shortened so that four feet of each shoot remains inside the house. But if the shoots be much less than two inches in circumference, let them be cut down so that only two buds be left upon each Vine inside the house. After being thus pruned, the Vines will require in every other particular the treatment before directed. When the Vines push at spring, those which were pruned to four feet in length may be allowed to bear fruit this summer; but those which were cut down to two buds must not be permitted to bear any until the third summer from planting. Upon those Vines which are to bear fruit, every bud will generally show two or more bunches; but only one to each bud must be suffered to remain, with the exception of the uppermost and lowest shoots upon the Vine, both of which must be entirely divested of any fruit which may be upon them, as they are to be trained, in order to furnish wood to bear another season. The uppermost shoot must be allowed to grow to the top of the house and a little in an horizontal manner, and then must be stopped as directed before. The lowest shoot must be permitted to grow to the length of seven feet, and must then be stopped by cutting off the top so far back as to leave it only five feet long. By cutting the shoot so far back, it will be considerably more strengthened than if the top of the shoot had been vinched off when it had reached the length of five feet; because in the

former case, the wood having attained a little hardness, the buds will not push a new shoot so soon as where the shoot is very tender, as in the latter case; thus a greater space of time is afforded for the strengthening of the shoot. The shoot thus stopped must be kept at this length by stopping the new shoot after it has pushed a few inches; this must be repeated as frequently as required. Those shoots which are allowed to bear fruit must be stopped at the second joint above the bunch as soon as two joints can be distinctly seen, and when they push again, they must be permitted to grow a few inches, and then be pinched back so as to leave one bud upon that part of the shoot which pushed the last; this must be repeated as frequently as required. Those shoots must regularly be tied up to the main stem of the Vine, so that they may not crowd each other, and on the other hand, not shade more than can be helped such trees or plants as may be underneath them. All claspers and laterals must be taken off in the manner already described. If both the buds pushed a shoot of those Vines which were, last winter pruning, cut down to two buds, let the uppermost be stripped off, and the lower one be trained up the rafter; and afterwards treated in every respect as directed for those which pushed vigorously the first year after being planted.

Second Year. Winter Pruning.—Let the leading shoot of those Vines which produced fruit be shortened, so that six feet of the wood made last summer be left, as Fig. 3, *a*. The lowest shoot must be pruned down to four feet, as *b*, which will be opposite to where the leading shoot was cut to the first winter pruning. By shortening the shoots as here directed all the buds will generally push strong shoots, and show good bunches of fruit the spring following; whereas if they had been left two or three feet longer, it would be uncertain whether some of the buds at the lower part would push shoots, which if they did would be weakly. But every desired advantage both as to fruit and wood is obtained by pursuing the directions given. All those lateral shoots which produced fruit, as *c*, *d*, must be cut clean away to the stem which they proceed from. The following summer the Vines will bear fruit for the length of ten feet; and two bunches of fruit may be allowed upon each bud; all others must be pinched off. Each uppermost new shoot upon the shoots, *a*, *b*, of the last year's wood must not be permitted to retain any fruit whatever, but the uppermost new shoot upon the shoot *a* must be trained to the top of the house, and be stopped as before directed. Also the uppermost new shoot upon the shoot *b* must be allowed to grow to nine feet in length, and then be stopped by cutting away two feet off the end, at which length it must afterwards be kept during summer. It will generally happen that there will be several buds break from the oldest wood of the Vine, and very near to the bottom, in which case a shoot must be retained and trained up at the opposite side the main stem of the Vine to the shoot *b*; all other shoots which arise near to the origin of this must be rubbed off when about one or two inches long. If a shoot does not proceed from the old wood, the lowest new shoot upon the Vine must be trained in for the same purpose. This shoot must be allowed to grow about seven feet long, and then be stopped by cutting off the top to five feet, as before directed, to the lowest shoot last year.

Third Year. Winter Pruning.—The uppermost shoot or lead of the Vine must now be cut off so as to leave six feet of the wood made last summer, as Fig. 4, *a*. This will very probably be near the top of the house; if it should be so, a foot longer or shorter may be allowed, so that the Vine answer the desired end in coming as high up as wanted, which ought to be about fifteen or eighteen inches from the top. The second shoot upon the Vine must be cut back so as to leave six feet of the new wood, as Fig. 4, *b*; and the lowest shoot be pruned down to four feet, as *c*. All lateral shoots (whether they bore fruit or not last summer) must be cut clean away, as *d*, *d*, *d*. When the Vines break the ensuing spring, they will have three different bearing shoots, as *a*, *b*, *c*, which will probably extend to the top of the house, being sixteen feet in a bearing condition. The uppermost shoot upon the Vine must this summer be allowed to retain two bunches of fruit, the same as all other bearing shoots. The bunches being retained upon the top shoot prevent its growing so vigorously as it otherwise would. The top shoot must be stopped in the same manner as all other bearing shoots. The top buds upon those two shoots which supply fruit at the lower part of the Vine, as *b*, *c*, must not have any fruit left upon them, but be trained up to furnish wood as already directed. Another shoot must this summer be trained up from the bottom of the Vine (from the old wood, if possible, otherwise as low down as it can be had); this shoot must be treated according to previous instructions. It is desirable that it should be trained up the opposite side of the Vine from the last shoot trained in.

Fourth Year. Winter Pruning.—The shoot which bore fruit to the top of the house must now be cut entirely away to the bottom of the Vine, as Fig. 5, *a*, close to the point

from which the next shoot in length proceeds, as that is to supply the place of the one taken away, and must be shortened to the extent the Vine is to bear, as at *b*. All the other shoots must be pruned off at their respective lengths, agreeably to the instructions previously given; also all the lateral shoots must be cut clean away, as before directed. When shoots are produced upon the old stems from which the lateral shoots were cut away, if they are not wanted for a supply of wood, let them be rubbed off when they are an inch long. This treatment of the Vine may be practised for a great number of years, and under it will always be properly furnished with wood and be in a good bearing condition. The principal object is to obtain a supply of young wood as *low down* the Vine as possible. When, through weakness, it is deemed necessary to renovate the Vines, they must be cut entirely down to one or two buds, and afterwards be treated as young Vines. The Vine border must also be renewed when required, by an addition of fresh soil and manure, in the same proportion to each other as directed for a new border. In performing this begin to open a trench at six feet from the house, to the *front* of the border, and be careful not to bruise or break more roots than cannot possibly be avoided. Take a considerable quantity of the old compost entirely away, and substitute new instead of it. Lay the roots of the Vines carefully upon the soil in a proper direction, placing them eight or ten inches higher than they were before, in order to allow for settling, so that when the border sinks they may be at their proper level with the other roots which were not disturbed. Such a renewal of the border should always take place about the time when the Vines are pruned at autumn.

In our remarks on the formation of the Vine border, we have been particular as to the necessity and advantage of having it well drained, and the plan we detail having been adopted in many very wet and, of course, unfavourable situations, has fully answered every desired purpose of keeping the compost of the border sufficiently dry, preserving it from all excess of wet. Some persons, however, have been at the expense of constructing cold air drains, or chambers, the top of which being supported on pillars, formed the floor for the compost. In addition, the surface of the border has had a covering of glass to protect it from excess of rain, etc., the sashes of which were moveable, and could be taken away at pleasure in spring or other period. When early ripe grapes were required, forcing had, of course, to be commenced at a proportional early period of winter, when the soil of the border was at its *extreme of cold*, and the heads of the Vines being introduced into the house, where a high degree of temperature is necessarily requisite, they are placed in the extremely injurious circumstances in which a man would be if exposed to a *hot steam bath* whilst his feet were imbedded in ice. In order to prevent the evil which would certainly ensue, means have been employed to warm the border, by having a hot-air chamber underneath; and thus have the temperature of the soil and the house at a degree of due equality, and the very best success has resulted where the system has been put in practice. Perhaps some of our readers may be led to adopt the principle in whole or in part, we have therefore given some engraved illustrative figures of a Vinery having the border chambered, and warmed on the hot-water-pipe system. (See annexed plate.)

Reference to Section.—Fig. 6: *a* shows the Vinery chamber, hot-water pipes, etc.; *b*, cistern; *c*, boiler; *d d*, air-circulating pipes; *e*, the flow pipe into the chamber; *f*, the return pipe from the chamber; *g*, surface of the border.

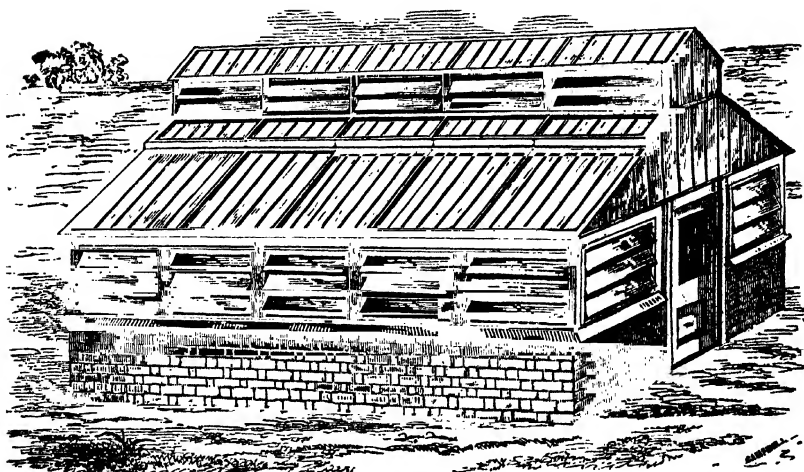
Fig. 7, *Ground Plan*: *a b c d* shows the chambered vault in which are the square pillars for supporting the pavement, whether it be of thick slate or other material, and the direction of the hot-water pipes proceeding from the boiler across the house and border to the front, and, after making the circuit of the border, returning again to the boiler; *e*, stoke-hole, furnace, and boiler.

SYRINGING THE BUDS.—Whilst the Vines are in the horizontal position, along the front of the house, with a view to retard their pushing, and at the same time contributing to the more general breaking of the buds—at the same time, too, it will essentially promote this to syringe the branches three times a day, commencing as soon as the buds appear to be rising, and continue till they have pushed shoots an inch long, then the Vines must be secured up the *r. f.* or trellises.

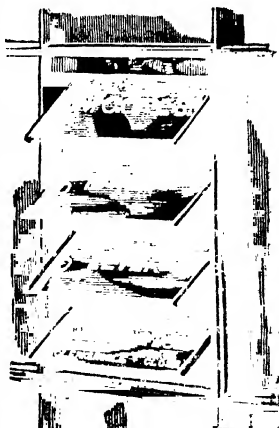
INSECTS.—The red spider is partial to Vine-leaves, and their ravages at the under side of the leaves are soon apparent by their becoming brown. In this case, mix some common sulphur in whitewash, and apply it to the flue; where practicable, have the flue gently warmed, but so as to cause a fume for a short time from the sulphur: this will soon destroy every insect. If the attack has been confined to a solitary Vine, a portion of the mixture placed upon a warm metal plate, and held underneath the Vine at a suitable distance, will answer the desired purpose. In each method of application, care

must be taken not to have either the flue or plate hot, but warm; a fume of vapour from the sulphur must be produced, and that can only be but from fire-heat. If mildew appear on the leaves, shown by dark spots, sprinkle over and under with dry sulphur. At the time the Vines are loosened for tying them across the front of the house, strip off all loose bark, and with a brush lay a liberal portion of the following liquid mixture:—To one quart of strong tobacco-water add one gill of weak gas-water, one quart of strong soap-suds made of the common soft soap, and a gill of common sulphur. These must be well boiled together, and, when cool enough, applied to the Vines. It will destroy the larvæ of insects. Where Vines have been severely attacked by red spider, at the time of pruning in autumn take out the stock of plants, and fill the house with a strong fume of heated sulphur for a few hours; this will not injure the branches of the Vine, but the impregnated air will destroy every insect it reaches.

VENTILATION OF STOVES, GREENHOUSES, ETC.



THE ventilation of such structures, whether for the purpose of cultivating in them fruits or flowers, has, till lately, been both much neglected and little understood, although a proper *Ventilation* is the most important requisite in their construction. Ventilation is founded upon the simple principle that cold air is *heavier*, and has a tendency to sink downwards, whilst hot air is *light*, and rises to the top. At first sight it may appear that it is only necessary to have openings at the top and bottom, for the air to enter below and escape above; but, practically, proper ventilation is not so simple an affair as supposed by some, and it has been found difficult to cause currents of air to obey our will, and take their course through the structure with the velocity desired. The best system of Ventilation we have seen, being both *correct* and simple in principle, and also completely effective, is MOORE'S PATENT LEVER GLASS VENTILATOR. We have seen it in use at Messrs. Veitch's Nursery King's Road, Chelsea, and is highly approved of by Mr. Veitch. In appearance it is very neat, readily worked, and its action so admirably arranged that it is scarcely



possible to get out of order, whilst at the same time air can be admitted even in wet and boisterous weather, without injury to the plants or fruits. The Ventilators can be readily fitted to stoves, greenhouses, etc., already erected. The annexed plates will illustrate in some degree the system of Ventilation, and show in what way the advantages are realized. Any ordinary workman can readily fit them where required.

AUTOGRAPHS OF EMINENT GARDENERS & NATURALISTS.

(See Plate.)

1. *Philip Miller*, the author of the "Gardener's Dictionary," and for many years Curator of the Botanic Gardens, Chelsea. Died Dec. 18, 1771, aged 80.
2. *Batty Langley*, of Twickenham, author of several works on laying out grounds and improvements in rural affairs, who flourished in the early part of the last century.
3. *Dr. Daniel Solander*, a native of Sweden, selected for his eminent abilities to accompany Captain Cook in his voyage round the world, as naturalist to the expedition.
4. *Sir John Hill*, author of "The British Herbal."
5. *Thomas Pennant*, an eminent naturalist of the last century.
6. *Peter Collinson*, a great patron of gardening and botanical science. Born in London, 1693, and died Aug. 11, 1768.
7. *Carolus Linnaeus*, the well-known reformer of natural sciences, and founder of the Linnæan system of botany.
8. *Mr. Curtis*, the nurseryman, and originator of the "Botanical Magazine."
9. *Sir Hans Sloane*, one of the most ardent collectors of plants and other specimens this country has produced, and founder of the Botanic Gardens, Chelsea.
10. *Joseph Sabine*, one of the founders and some time secretary to the Horticultural Society of London.
11. *John Evelyn*, author of several gardening works, and known as an enthusiastic gardener of the seventeenth century. Born Oct. 31, 1620, died Feb. 27, 1706.
12. *Latreille*, the French entomologist; originator of the "tarsal system."
13. *François Willoughby*, the friend and patron of Ray, and author of "Ornithology."
14. *J. C. Loudon*, the well-known author of the "Encyclopædia of Gardening," etc., and for many years conductor of the "Gardener's Magazine." Born in Scotland, April 8, 1788, died Dec. 14, 1843.
15. *Tournefort*, the eminent French botanist.
16. *Sir Joseph Banks*, a great patron of gardening and science. Died June 9, 1820.
17. *Thomas Bewick*, the engraver and author of the "Natural History of British Birds and Quadrupeds."
18. *Cuvier*, the French naturalist.
19. *Buffon*, author of the well-known "Histoire Naturelle."
20. *A. G. Werner*, the mineralogist, founder of the Wernerian system.
21. *The Abbé de St. Pierre*, a French naturalist, author of several delightful works.

We regret that space does not allow of a more extended notice of some of the above worthies.

SUPERB FUCHSIAS.—Dark coloured tube, sepals, and corolla—Banks's Prince Albert, B. Favourite, B. Beauty of the Bower, B. Omer Pasha, B. Grand Sultan, B. Autocrat, Climax, and Hendersoni, which has a double corolla. Light coloured tube and sepals, with a scarlet or other rich-coloured corolla—Henderson's Duchess of Lancaster, B. Maid of Kent, Lady Franklin, Queen of Hanover, Standish's Perfection, Dender's Princess of Prussia, Omega, B. Clio and Thalia.

Striped corolla—Dubous's Imperatrice, Eugenie, Story's Perugino, S. Raffaele.

New white corolla—Tube and sepals rich coloured, and corolla white—Galanthiflora, plena. Corolla double, like a snowdrop, white—Story's Ranunculiflora. Corolla double, white—S. Queen Victoria, S. Mrs. Story—S. Empress Eugenie, S. Lady of the Lake, and Rouge et Blanc.

Globe flowered—S. Water Nymph. White corolla—H. Globosa perfecta, K. globosa magnifica, Bornossia, and Arthur de la Perle.

FINEST SHOW HOLLYHOCKS.—Pourpre de Tyre, Lady Braybrooke, Lizzy, Princess Alice, Walden Rival, Mr. Adams, Emperor (Rooke's), Louis Napoleon, Jenny Lind, Mont Blanc, Hon. Mrs. Ashley, Beauty of Cheshunt, White Globe, Sulphurea perfecta, Pearl (Chater's), Hedenham Rival, Julia Chater, King of Yellows.

